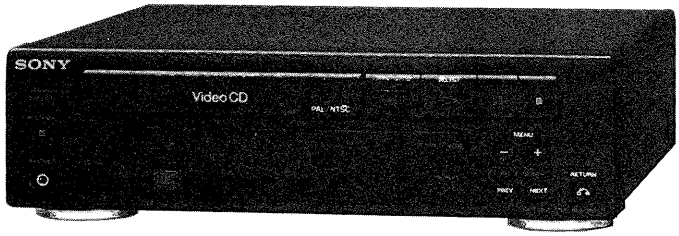
MCE-S50

SERVICE MANUAL

E Model
Tourist Model



Model Name Using Similar Mechanism	NEW
CD Mechanism Type	CDM14M-5BD20
Base Unit Type	BU-5BD20
Optical Pick-up Type	KSS-213B

SPECIFICATIONS

VIDEO CD player

Laser	Semiconductor laser
Wavelength	780 – 790 nm
Signal format system	NTSC, PAL
Frequency response	2 Hz to 20 kHz ±0.5 dB
Signal-to-noise ratio	More than 92 dB

Outputs

	Jack type	Maximum output level	Load impedance
AUDIO OUT	Phono jacks	2 V (at 50 kilohms)	Over 10 kilohms
DIGITAL OUT (OPTICAL)	Optical output connector	–18dBm	Wave length: 660nm
VIDEO OUT	Phono jack	1 Vp-p	75 ohms, unbalanced, sync negative
PHONES	Stereo mini jack	10mW	32 ohms

General

Power requirements	110 – 120 V or 220 – 240 V AC, adjustable, 50/60 Hz
Power consumption	16 W
Dimensions (approx.) (w/h/d)	280 × 82.5 × 285 mm incl. projecting parts
Mass (approx.)	3.2 kg

Supplied accessories

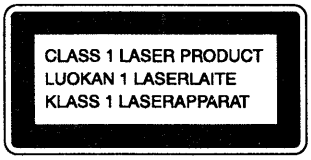
Audio connecting cord (2 phono plugs – 2 phono plugs) (1)
Video connecting cord (1 phono plug – 1 phono plug) (1)
Remote commander (remote) RMT-S50 (1)
Sony SUM-3 (NS) batteries (2)
Plug adaptor (1)

Design and specifications are subject to change without notice.

VIDEO CD PLAYER

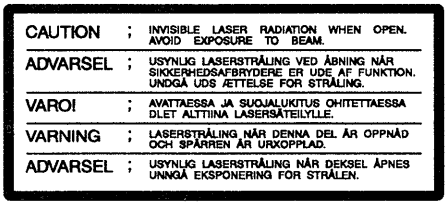
SONY

The laser component in this product is capable of emitting radiation exceeding the limit for Class 1.



This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

The following caution label is located inside the unit.


CAUTION ; INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
ADVARSEL ; USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARO! ; AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA LASERSÄTEILYLLE.
VARNING ; LASERSTRÅLING NÄR DENNA DEL ÄR OPPNAD OCH SPÄRREN ÄR URKOPPLAD.
ADVARSEL ; USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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SECTION 1
SERVICING NOTE

SELF-DIAGNOSIS

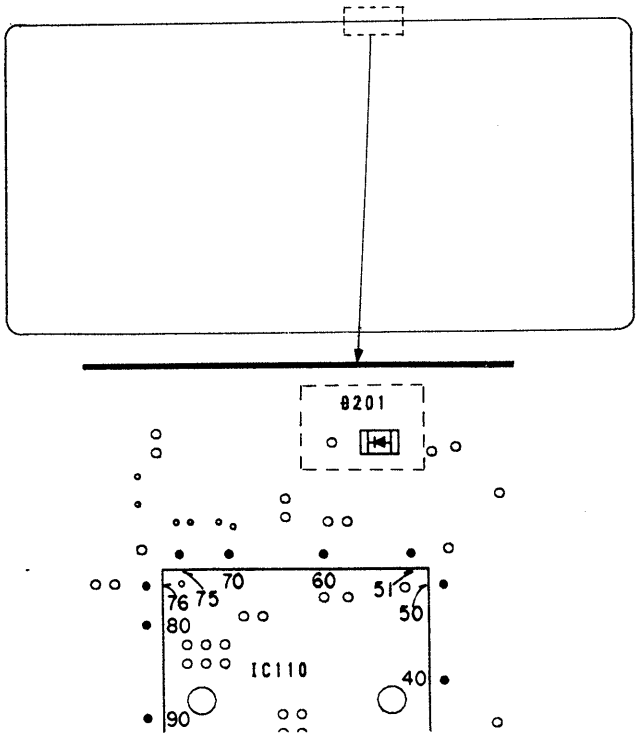
This model has the self-diagnosis function for the video and audio decoder sections.

Immediately after the power on, the self-diagnosis function searches each operation of IC's around the mechanism control microcomputer (IC110).

The LED (D201) on the VIDEO board indicates their results.

LED (D201) INDICATION	SYMPTOM
Light	No error
1 Time blinking (Repeatedly)	External RAM error (IC105)
2 Time blinking (Repeatedly)	Video decoder error (IC107)
3 Time blinking (Repeatedly)	Video RAM error (IC104)
4 Time blinking (Repeatedly)	Audio decoder error (IC102)

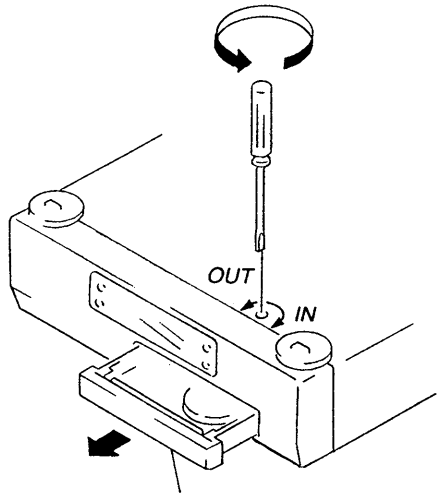
[VIDEO BOARD] — SIDE A —



HOW TO OPEN THE DISC TRAY WHEN POWER SWITCH TURNS OFF

Insert a tapeing driver into the aperture of the unit bottom, and turn in the direction of arrow (to OUT direction).

* *To close the disc table, turn the driver in the reverse direction (to IN direction).*



Pull out disc table.

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.

During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repain parts.

The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

LASER DIODE AND FOCUS SEARCH OPERATION CHECK

Carry out the "S curve check" in "CD section adjustment" and check that the S curve waveform is output three times.

SECTION 2
TEST MODE

VIDEO CD COLOR-BARS MODE I

On this mode, the data of the color-bars signal as a picture signal and the 1kHz sinc wave signal as a sound signal are output by the mechanism control microcomputer (IC110) for video CD signal check. When measurement of the voltage and waveform on the VIDEO board, perform it in this mode.
For refernce, the color-bars signal can be observed at J301 (VIDEO OUT) and the sound signal can be observed at J301 (AUDIO OUT) using an oscilloscope.

1. Turn the power on.
2. Connect the SL101 (C BAR (MICON)) on the VIDEO board with solder.
3. After measuring, remove the soldering installed.

VIDEO CD COLOR-BARS MODE II

Recommend to perform this mode if something wrong with the video system on VIDEO CD COLOR-BARS MODE I as previously stated. On this mode, the data of the color-bars signal as a picture signal is output from IC109 (MPEG DISPLAY).
When this mode is performed, the circuit on and after IC109 (MPEG DISPLAY) is normal if the color-bars signal is output normally. It supposed to be anything unusual of the circuit between IC110 (MECHA CONTROL CPU) and IC107 (MPEG DECODER).

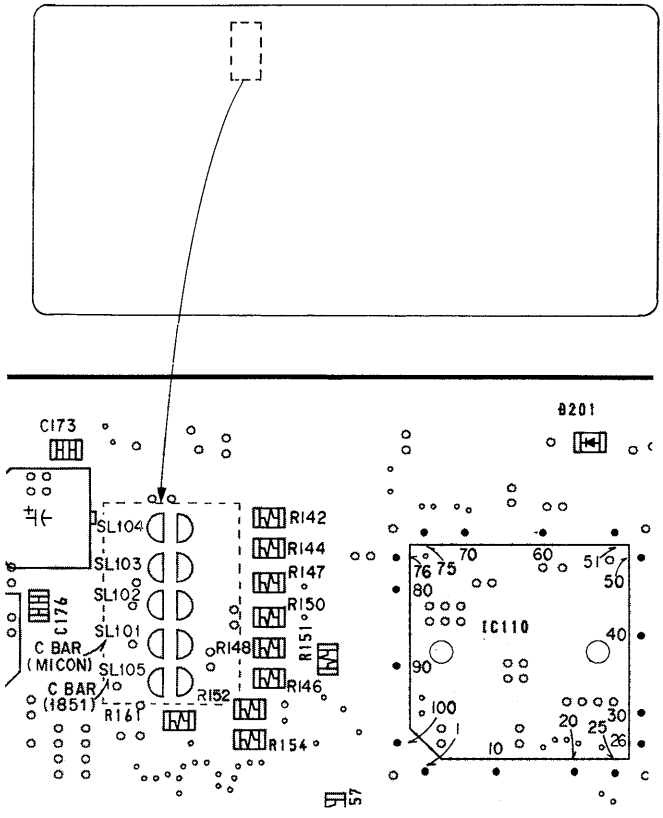
1. Turn the power on.
2. Connect the SL105 (C BAR (1851)) on the VIDEO board with solder.
3. After measuring, remove the soldering installed.

E-F BALANCE MODE

• Refer to SECTION 5 ELECTRICAL ADJUSTMENTS page 15.

1. Turn the power on.
2. Connect the SL103 and SL104 on the VIDEO board with solder.
3. Press the [▷] button in playback.
4. Every pressing the [MENU–] button, the tracking servo and the sledding servo are turned on or off.
5. When the servo is OFF, the counter on front panel will not be changed.
6. After measuring, remove the soldering installed.

[VIDEO BOARD] — SIDE A —

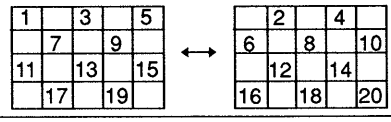
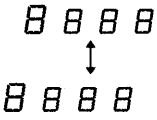


Lighting of All Fluorescent Indicator Tube Displays and Key Check Mode

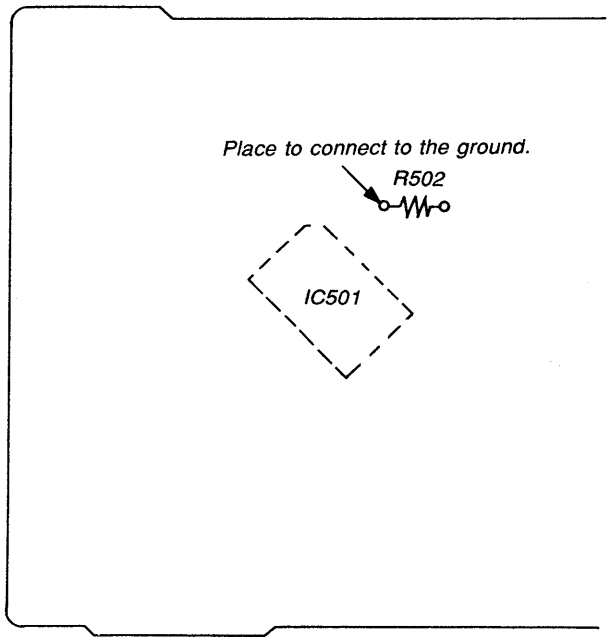
1. Connect Pin 1 (TEST 2) (one pin of R502) of IC501 on the main board to ground.
2. Connect the power plug to the outlet.
3. All the Fluorescent Indicator tube displays light up.
4. Press any button to enter the key check mode. In the key check mode, each time a button is pressed, figures displayed on the Fluorescent Indicator tube displays increase. However, figures will not increase for buttons which have been pressed once.
   The button number corresponding to the button pressed will also be displayed. Button numbers are displayed only while the corresponding buttons are pressed.
5. To exit the test mode, disconnect the power plug from the outlet.

7-segment display

Count up display *Button number display*

Button Name	Button Number (Displayed only while a button is pressed.)
⏏ OPEN/CLOSE	Figure 3
POWER	Figure 4 and adjacent LED (D851)
MENU –	Figure 9 and adjacent LED (D852)
MENU +	Figure 10 and adjacent LED (D852)
PLAY MODE	Figure 11
REPEAT	Figure 12
PREV ⏮ AMS	Figure 13
NEXT ⏭ AMS	Figure 14
RETURN ↩	Figure 15
■	All Fluorescent Indicator tube displays light up
▯▯	Music calendar light up alternately (odd number to even number) 
▷	7 segments displays light up alternately 

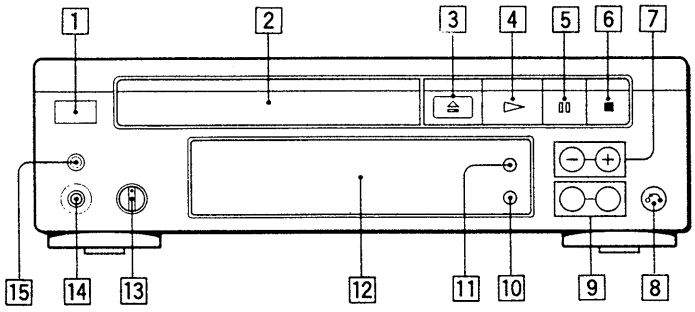
[MAIN BOARD] (Component side)



SECTION 3
GENERAL

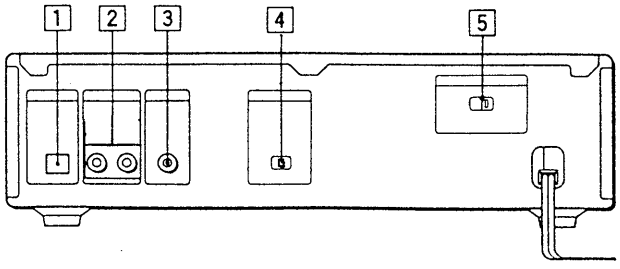
This section is extracted from instruction manual.

FRONT PANEL



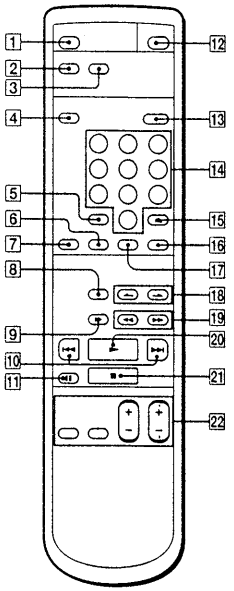
1 POWER switch
2 Disk tray
3 ≙ OPEN/CLOSE button
4 ▷ (SELECT) button
5 II (pause) button
6 ■ (stop) button
7 MENU+/– buttons
8 RETURN ↶ button
9 PREV ⏮/NEXT ⏭ buttons
10 REPEAT button
11 PLAY MODE button
12 Display window
13 PHONES LEVEL control
14 PHONES jack
15 (remote sensor)

REAR PANEL



1 DIGITAL OUT OPTICAL jack
2 AUDIO OUT jacks
3 VIDEO OUT jack
4 COLOR SYSTEM switch
5 VOLTAGE SELECTOR switch

Remote Commander



1 ⏏ OPEN/CLOSE button
2 ON SCREEN button
3 L/R/STEREO button
4 PLAY MODE button
5 >10 button
6 A↔B (A↔B repeat) button
7 REPEAT button
8 TIME button
9 SLOW ▮► button
10 PREV⏮/NEXT⏭ buttons
11 ▮▮ (pause) button
12 POWER button
13 SPECIAL MENU button
14 Numeric buttons
15 RETURN button
16 CLEAR button
17 CHECK button
18 INDEX ←/→ buttons
19 ◀◀/▶▶ buttons
20 ► (SELECT) button
21 ■ (stop) button
22 TV operation buttons

This Player Can Play the Following Discs

	VIDEO CDs	Audio CDs
Disc logo	COMPACT disc DIGITAL VIDEO	COMPACT disc DIGITAL AUDIO
Contents	Audio + Video (moving pictures)	Audio
Disc size	12 cm/8 cm	12 cm/8 cm (CD single)
Play time	74 min./ 20 min.	74 min./ 20 min.

To play VIDEO CDs, see page 8.

To enjoy PBC Playback of VIDEO CDs with PBC functions, see page 10.

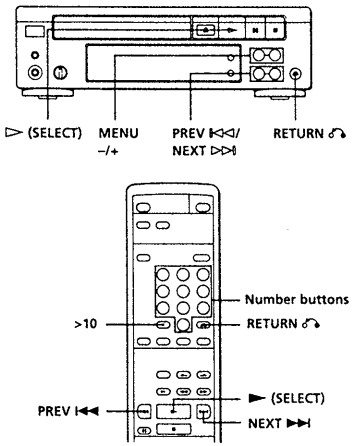
Note on VIDEO CDs

This player conforms to Ver. 1.1 and Ver. 2.0 of VIDEO CD standards. You can enjoy two kinds of playback according to the disc type.

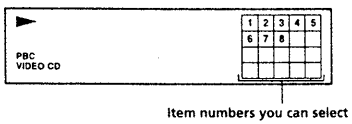
Disc type	You can
VIDEO CDs without PBC functions (Ver. 1.1 discs)	Enjoy video playback (moving pictures) as well as music.
VIDEO CDs with PBC functions (Ver. 2.0 discs)	Play interactive software using menu screens displayed on the TV screen (PBC Playback), in addition to the video playback functions of Ver 1.1 discs. Moreover, you can play high-resolution still pictures.

Playing VIDEO CDs with PBC Functions (PBC Playback)

When playing VIDEO CDs with PBC functions (Ver. 2.0 discs), you can enjoy playing simple interactive software, software with search functions, etc.
PBC Playback allows you to play VIDEO CDs interactively, following the menu screen on the TV screen.
On this player, you can use the number buttons, ▷ (SELECT), MENU–/+, PREV ⏮, NEXT ⏭, and RETURN ↩ during PBC Playback.
Also refer to the instructions supplied with the disc, as the operating procedure may differ according to the VIDEO CD.



1 Start playing a VIDEO CD with PBC functions, following Steps 1 through 4 in "Playing a VIDEO CD" on page 8.
The menu screen appears on the TV screen and "SELECT" flashes. The MENU indicator on the player flashes and the item numbers you can select in the menu appear in the front panel display.
Note that some item numbers cannot be selected even if they appear in the front panel display.



Item numbers you can select

2 Select the item number you want.

On the player
Press MENU + or – to select the item number, then press ▷ (SELECT).

On the remote
Press the number button of the item you want.
When you want to select an item number over 10, press >10 first, then the corresponding number buttons. To enter "0," use button 10/0.
Exmaple: To select item number 30
Press >10 first, then 3 and 10/0.

3 Follow the instructions on the menu screen for interactive operations.

When	Do the following
Selecting the item (while the MENU indicator is flashing)	Press MENU+ or – on the player, then press ▷ (SELECT).
	Press the number button of the item you want on the remote.
"SELECT" is flashing on the TV screen while playing moving pictures	In this case, you can go to another scene even while playing moving pictures. Press ▷ (SELECT) or number button of the item you want on the remote.
Going back to the menu screen	Press RETURN ↩, PREV ⏮, or NEXT ⏭. (Also refer to the instructions supplied with the disc, as the operating procedure may differ according to the VIDEO CD.)

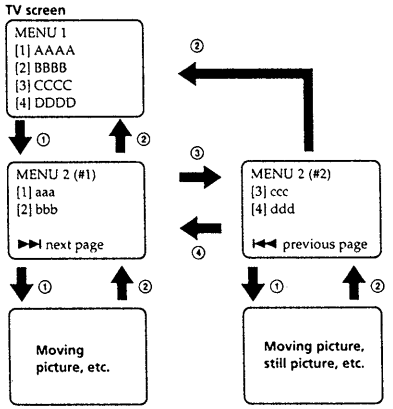
When "✋ CANNOT OPERATE NOW" appears on the TV screen
You've pressed an invalid button. Press the correct button, following the instructions on the menu screen.

To cancel PBC Playback of a VIDEO CD with PBC functions and play the disc in Continuous Play mode
There are two ways.
- Before you start playing, select the track you want with ⏮ or ⏭, then press ▷.
- Before you start playing, select the track number using the number buttons on the remote.

"PBC OFF" and "CONTINUE" appear in the front panel display and the player starts Continuous Play. You cannot play still pictures such as a menu screen.
You cannot cancel PBC playback by pressing PLAY MODE repeatedly until "CONTINUE" appears in the front panel display.

Example of PBC Playback

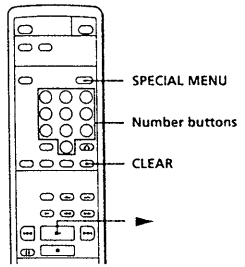
This is an example of PBC Playback. Also refer to the instructions supplied with the disc, as the operating procedure may differ according to the VIDEO CD.



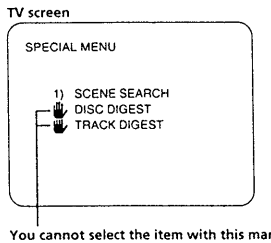
① To select the item:
Press MENU+ or – to select the item number, then press ▷, or select the number button you want on the remote.
② To go to the preceding menu:
Press ↩.
③ To go to the next page of the menu:
Press ⏭.
④ To go back to the preceding page of the menu:
Press ⏮.

Locating Scenes Directly Using the Scene Numbers (Scene Search)

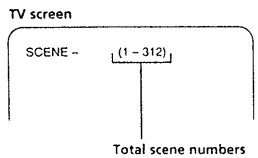
On VIDEO CDs with PBC functions, the menu screens, moving pictures and still pictures are divided into "scenes" and each scene is assigned with a scene number.
You can check the current scene number by displaying it on the TV screen during playback (see page 13). Be sure to memorize the scene number from which you want to start playing.



1 Press SPECIAL MENU before you start playing or while playing a disc.
The following menu appears on the TV screen.

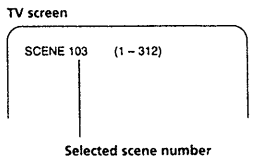


2 Press button 1.
"SCENE –" and the scene numbers appear on the TV screen.



(Continued)

3 Press the number buttons (1 – 10/0) to select the scene.
To enter "0", use the button 10/0.
Example: To select scene number 103
Press 1, then 10/0 and 3.
The selected scene number appears on the TV screen.



If you've made a mistake
Press CLEAR, then press the correct number button.

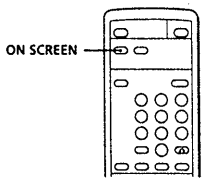
4 Press ► to start playing from the selected scene.
The player automatically starts PBC Playback (page 10).

You can check the scene number while playing a disc
Press ON SCREEN repeatedly to select ON SCREEN 2 display mode (see page 13). The scene numbers appear on the upper left side of the TV screen.

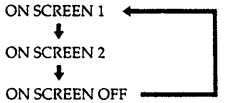
Notes
- Some discs don't allow you to start playing from a particular scene. In this case, when you do the task before you start playing, the player starts playing from scene 1. When you do the task while playing a disc, the player starts playing from the current scene.
- Some discs don't display the selected scene on the TV screen.

Using the On-Screen Display

You can check the operating status of the player and the information about the disc with the on-screen display on the TV screen.

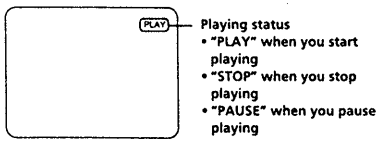


Press ON SCREEN.
Each time you press the button, the on-screen display changes as follows:

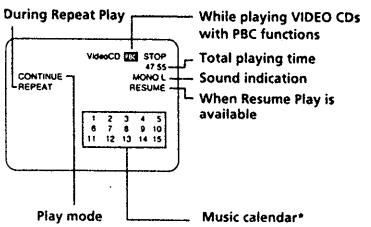


When Using a VIDEO CD

■Display information of ON SCREEN 1 mode
The operating status is displayed for a few seconds only when you change the operating status.

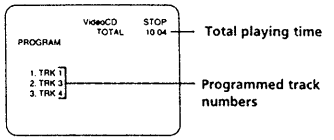


- **Before you start playing (except for the Program Play mode)**

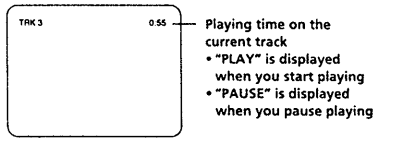


* The music calendar is not displayed during PBC Playback.

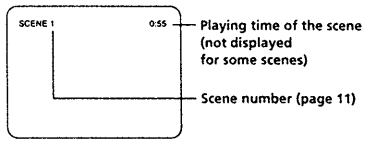
- **Before you start playing in Program Play mode**



■Display information of ON SCREEN 2 mode
While playing a disc, the current track number and the playing time are always displayed.
The operating status is displayed for a few seconds only when you change the operating status.
The same information as in ON SCREEN 1 is displayed before you start playing.


TRK 3
0:55
Playing time on the current track
• "PLAY" is displayed when you start playing
• "PAUSE" is displayed when you pause playing

- **During PBC Playback (page 10)**



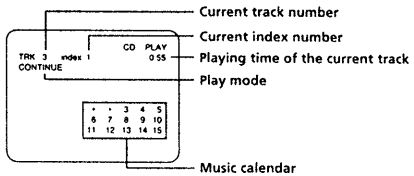
■Display information of ON SCREEN OFF mode
No information is displayed.

When Using an Audio CD

The same information is displayed in ON SCREEN 1 mode and ON SCREEN 2 mode while playing an audio CD.

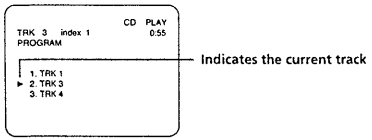
■Display information of ON SCREEN 1 or ON SCREEN 2.

- **In Continuous or Shuffle Play mode**

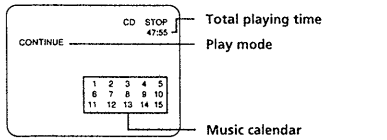


(Continued)

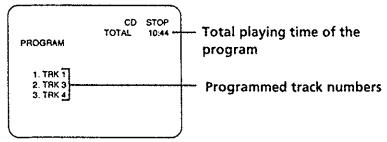
• In Program Play mode



• Before you start playing (except for the Program Play mode)



• Before you start playing in Program Play mode



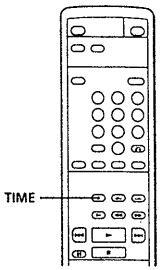
■ Display information of ON SCREEN OFF mode
No information is displayed.

Notes

- Select the display mode other than ON SCREEN OFF for normal operation. When you select ON SCREEN OFF, you cannot check the operating status while operating the player. In this case, check the information in the front panel display.
- When you record the playback picture of this player on another VCR, etc., be sure to select ON SCREEN OFF. Otherwise, the display information is also recorded on the VCR.

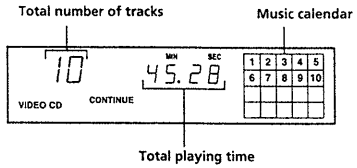
Using the Front Panel Display

You can check information about the disc using the front panel display.



Checking the total number and playing time of the tracks

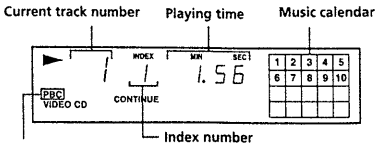
Press TIME before you start playing.
The front panel display shows the total number of tracks, total playing time and music calendar.



The information also appears when you press ⏏ OPEN/CLOSE to close the disc tray.

Display information while playing a disc

While playing an audio CD or a VIDEO CD without PBC functions, the front panel display shows the current track number, playing time of the track, index number (page 17), and the music calendar.

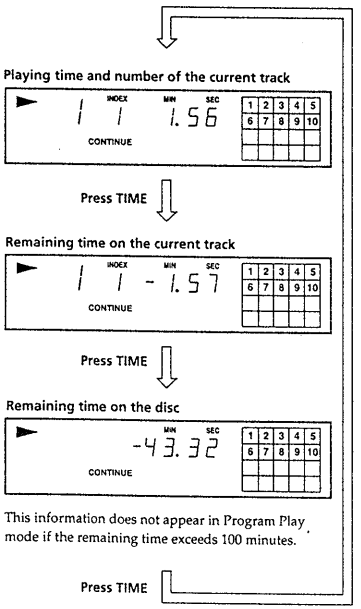


"PBC" is displayed while playing a VIDEO CD with PBC functions.

The track numbers in the music calendar disappear after they are played.
While playing a VIDEO CD with PBC functions, the track numbers and the music calendar aren't displayed. However, while the menu screen is displayed on the TV screen, the item numbers you can select in the menu appear in the music calendar.
Note that you cannot select some item numbers even if they appear in the music calendar.

Checking the remaining time

Each time you press TIME while playing a disc, the display changes as shown in the chart below.
Note that you cannot check the remaining time during PBC Playback (page 10).

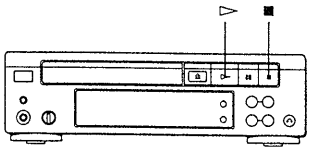


This information does not appear in Program Play mode if the remaining time exceeds 100 minutes.

What is a track?
A disc is divided into sections of a picture or a music piece called "tracks." Each track is assigned with a track number to locate the track you want.

Resuming Playback from the Point You Stopped a VIDEO CD (Resume Play)

The player memorizes the point you stopped a VIDEO CD and you can resume playback from that point.
Resume Play is not cancelled whenever you turn off the player.
Note that Resume Play is not available while playing an audio CD.



1 While playing a VIDEO CD, press ■ to stop playback.
"RESUME" appears in the front panel display and on the TV screen.
If "RESUME" doesn't appear, Resume Play is not available.

2 Press ▷.
The player starts playback from the point you stopped the VIDEO CD in Step 1.

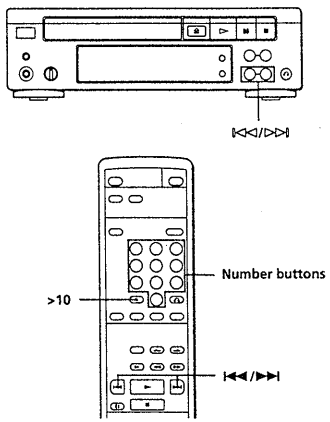
To view from the beginning of the VIDEO CD
When "RESUME" appears in the front panel display, press ■, then press ▷.

Notes

- Resume Play is not available in Shuffle or Program Play mode.
- Depending on where you stopped the VIDEO CD, the player may resume playback from a different point.
- The point at which you stopped playing is cleared when :
  - you press number buttons, PLAY MODE or ■
  - you remove the VIDEO CD from the player
  - you unplug the AC power cord of the player

Locating a Specific Scene or Track

You can quickly locate any scene or track while playing a disc using the ⏮/⏭ (AMS: Automatic Music Sensor) buttons or number buttons.
Note that while playing a VIDEO CD with PBC functions, this function is available only during playback without PBC functions (PBC OFF, page 10).



To locate	Press
The next or succeeding scenes or tracks (AMS)	⏭ repeatedly until you find the scene or track
The current or preceding scenes or tracks (AMS)	⏮ repeatedly until you find the scene or track
A specific track directly [T]	Number button of the track

When you directly locate a track numbered over 10 [T]

Press >10 first, then the corresponding number buttons. To enter "0," use button 10/0.
Example: To play track number 30
Press >10 first, then 3 and 10/0.

What is a track?

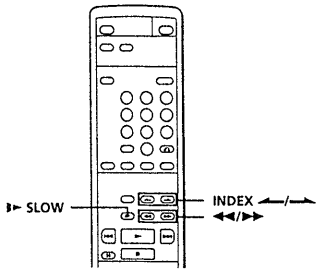
A disc is divided into sections of a picture or a music piece called "tracks." Each track is assigned with a track number to locate the track you want.

Note

During PBC Playback, the ⏮ and ⏭ buttons have different functions from the ones explained above.

Locating a Particular Point in a Scene or Track [T]

You can also locate a particular point in a scene or track while playing a disc.
During PBC Playback (page 10), this function is available only while playing moving pictures.
While playing an audio CD, Slow-motion Play is not available.



To locate a point	Press
While monitoring the picture or sound	▶▶ (forward) or ◀◀ (backward) and hold down until you find the point. You will not hear the sound while playing a VIDEO CD.
Slowly by observing the TV screen (Slow-motion Play)	SLOW. You will not hear the sound during the operation. When you find the point, press ▶ to return to the normal speed.
Quickly by observing the front panel display during pause	◀◀/▶▶ and hold down until you find the point. You will not hear the sound during the operation.

If "┐┐" appears in the front panel display

The disc has reached the end while you were pressing ▶▶. Press ◀◀ or ⏮ to go back.

If you want to change the playback speed during Slow-motion Play

Press SLOW repeatedly until you find the playback speed you want. Three speeds are available: SLOW 1 (1/5th the normal speed), SLOW 2 (1/10th) and SLOW 3 (1/15th). Each time you press the button, the indication changes as follows.

SLOW 1 → SLOW 2 → SLOW 3

Note

While playing a VIDEO CD, the picture may be distorted during the search operation.

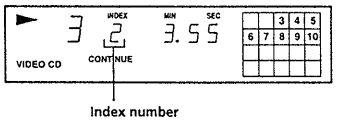
Locating a point using the index (Index Search)

There are two kinds of indexes: one is for audio CDs and the other is for VIDEO CDs. You can locate a point you want using the index.
Note that this function is available only for indexed discs. Also note that you cannot search indexes in different tracks.

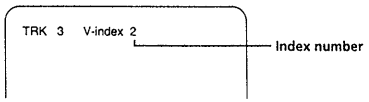
While playing a track, press INDEX ◀— or —▶ repeatedly.

- To locate the current or preceding index numbers, press INDEX ◀—.
- To locate the next or subsequent index numbers, press INDEX —▶.

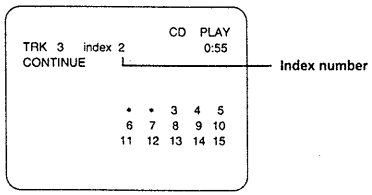
Front panel display



TV screen (while playing a VIDEO CD)
ON SCREEN 1 or 2 display mode



TV screen (while playing an audio CD)
ON SCREEN 1 or 2 display mode



What is an index?

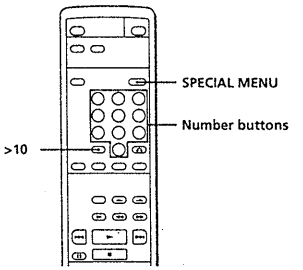
It is a number that divides a track or a disc into some sections in order to easily locate the point you want. You may determine if a disc uses index by looking at the disc's packaging.

Note

If there are no more indexes while playing a VIDEO CD, "✋ CANNOT OPERATE NOW" appears on the TV screen and

Locating by Observing Several Scenes at One Time (Digest Play) [T]

You can locate the track or scene you want by observing several still pictures at one time on the TV screen.
Note that while playing a VIDEO CD with PBC functions, this function is available before you start playing or during playback without PBC functions (PBC OFF, page 10).
While playing an audio CD, you will only hear the sound.

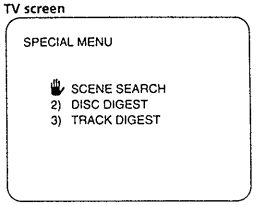


Locating the track you want on a disc (Disc Digest)

You can locate the track you want by observing the first picture of up to 9 tracks on the disc at one time on the TV screen.

1 Press SPECIAL MENU while playing a disc or before you start playing.
The following menu appears on the TV screen.

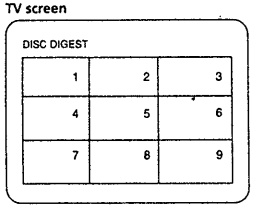
TV screen



(Continued)

2 Press button 2.
The TV screen shows still pictures of the first scenes of tracks 1 to 9 on the disc.

TV screen



To view still pictures of the tracks numbered over 9
Press ▶▶I. The TV screen shows still pictures of tracks 10 to 18.
If there are more tracks, "▶▶I" is displayed on the upper right side of the TV screen.
To go back to the previous screen, press I◀◀

3 Press the number button to select the track.
The player starts playing from the selected track.

To select tracks numbered over 10
Use the >10 button (see page 16).

To cancel Disc Digest
Press ■.

While the still pictures are displayed in Step 2, you can start playing the track you want right away before all the still pictures are displayed
Press ▶ when the picture of the track you want appears on the TV screen.

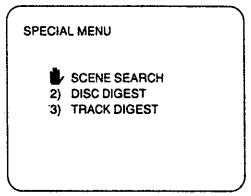
Notes
- If you start Disc Digest before you start playing a VIDEO CD with PBC functions, the player automatically starts playing without PBC functions (PBC OFF, page 10).
- When you start Disc Digest in Shuffle or Program Play mode, the player automatically enters Continuous Play mode (page 8).

Locating the point you want in a track (Track Digest)

You can have the player divide a track into 9 sections. You can locate the point you want by viewing the first picture of each section at one time on the TV screen. This might be useful when you play a disc which is divided into few tracks, such as a movie.

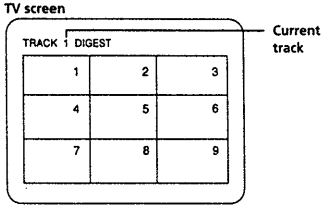
1 Press SPECIAL MENU while playing a disc or before you start playing.
The following menu appears on the TV screen.

TV screen



2 Press button 3.
The player divides the track into 9 sections and the TV screen shows still pictures of each section in order.

TV screen



3 Press the number button (1 – 9) to select the point you want.
The player starts playing from the selected point. The player may start playing from a point which is a little different from the one displayed during Track Digest.

To cancel Track Digest
Press ■.

You can select a point which isn't displayed yet on the TV screen in Step 2

During Track Digest, you can start Track Digest on another track
Press I◀◀ or ▶▶I.
Note that this function is not available in Shuffle or Program Play mode.

Notes
- If you start Track Digest before you start playing a VIDEO CD with PBC functions, the player automatically starts playing without PBC functions (PBC OFF, page 10).
- If you start Track Digest before you start playing in Shuffle or Program Play mode, the player automatically enters Continuous Play mode (page 8).
- When a track is shorter than about 40 seconds, the player may divide the track into less than 9 sections.

Glossary

Auto Pause

Automatic pause function that works according to the signal encoded on the disc during VIDEO CD playback. In this case, "AUTO ❚❚" appears in the front panel display. If the player doesn't resume play for a long time, press ❚❚ or ▷ to resume play manually.

PBC Playback

Playback using the menu screens recorded on VIDEO CDs with PBC functions. You can enjoy simple interactive operations using the PBC Playback function.

Playback Control (PBC)

Signals encoded on VIDEO CDs (Version 2.0) to control playback.
By using menu screens recorded on VIDEO CDs with PBC functions, you can enjoy playing simple interactive software, software with search functions, and so on.
When you insert a VIDEO CD with PBC functions on this player, "PBC" appears in the front panel display.

Track

Sections of a picture or a music piece on a disc. Each track is assigned with a track number to locate the track you want.

VIDEO CD

A compact disc that contains moving pictures.
The picture information uses the MPEG 1 format, one of the world wide standards of digital compact technology. The picture information is compressed about 120 times. Consequently, a 12 cm VIDEO CD can contain up to 74 minutes of moving pictures.
VIDEO CDs also contain compact audio information. Sounds outside the range of human hearing are compressed while the sounds we can hear aren't compressed. VIDEO CDs can hold 6 times the audio information of conventional audio CDs.
There are 2 versions of VIDEO CDs.

- Version 1.1: You can play only moving pictures and sounds.
- Version 2.0: You can play high-resolution still pictures and enjoy PBC functions.

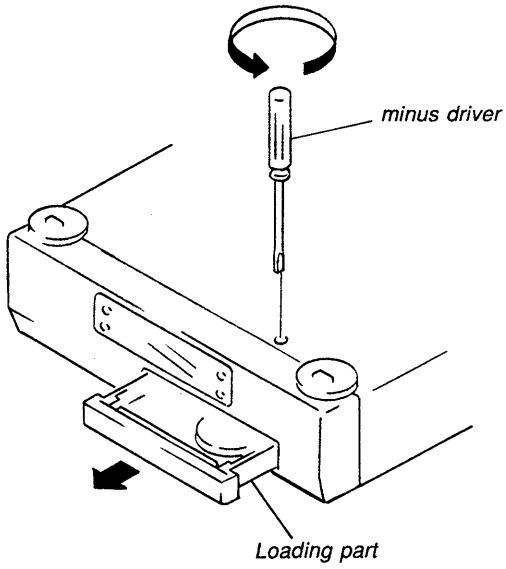
This player conforms to both versions.

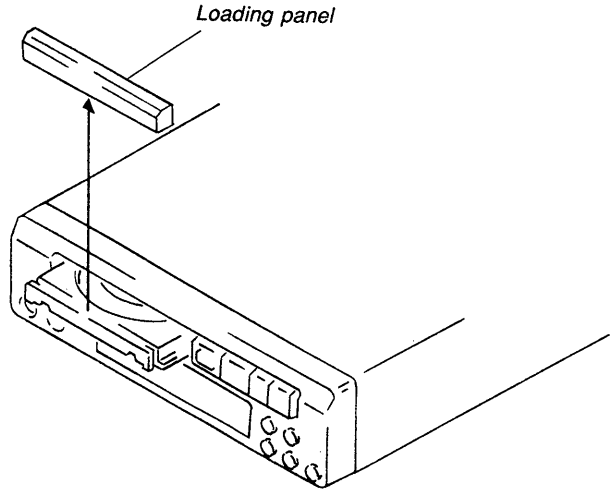
SECTION 4
DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

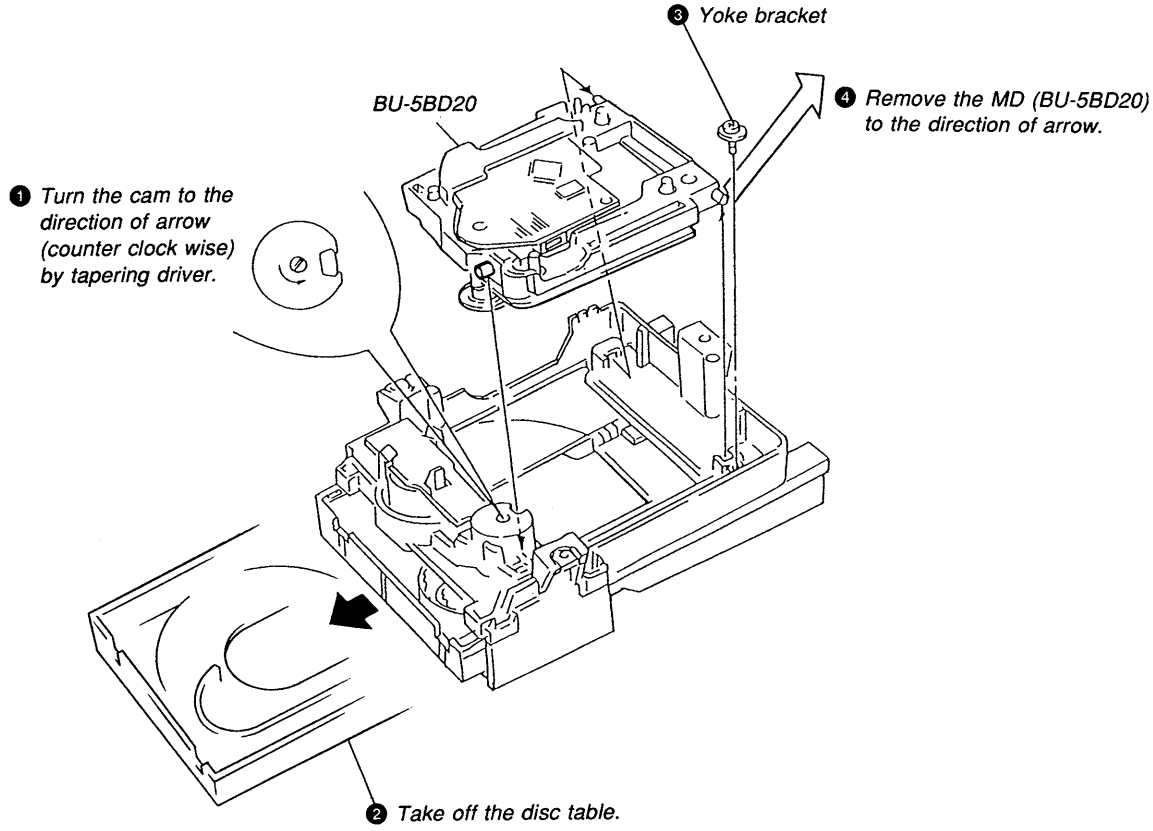
4-1. CABINET

• In order to remove the front panel block when the power supply does not turn on, rotate the cam with tapering driver as the figure shows, and the loading part will be moved.
Then pull out the loading part by your hand to remove the loading panel as the figure shows. After that take out the front panel block.





4-2. BASE UNIT (BU-5BD20)


❸ Yoke bracket
BU-5BD20
❹ Remove the MD (BU-5BD20) to the direction of arrow.
❶ Turn the cam to the direction of arrow (counter clock wise) by tapering driver.
❷ Take off the disc table.

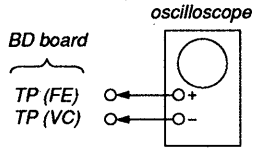
SECTION 5
ELECTRICAL ADJUSTMENTS

CD SECTION

Note :

1. CD Block is basically designed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use an oscilloscope with more than 10MΩ impedance.
4. Clean the object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.

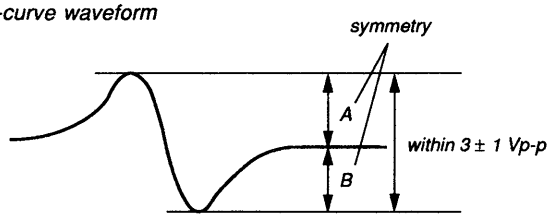
S Curve Check



Procedure :

1. Connect oscilloscope to test point TP (FE) on BD board.
2. Connect between test point TP (FEI) and TP (VC) by lead wire.
3. Turned Power switch on.
4. Put disc (YEDS-18) in and turned Power switch on again and actuate the focus search. (actuate the focus search when disc table is moving in and out.)
5. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 3±1 Vp-p.

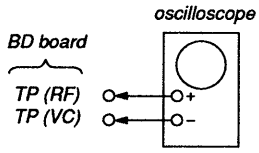
S-curve waveform



6. After check, remove the lead wire connected in step 2.

Note : • Try to measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
• Take sweep time as long as possible and light up the brightness to obtain best waveform.

RF Level Check

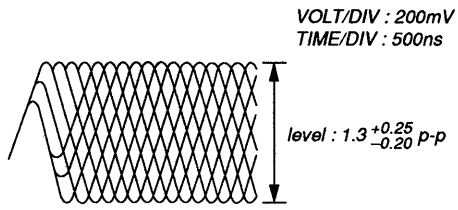


Procedure :

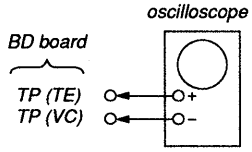
1. Connect oscilloscope to test point TP (RF) on BD board.
2. Turned Power switch on.
3. Put disc (YEDS-18) in to play the number five track.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

Note : A clear RF signal waveform means that the shape "◊" can be clearly distinguished at the center of the waveform.

RF signal waveform



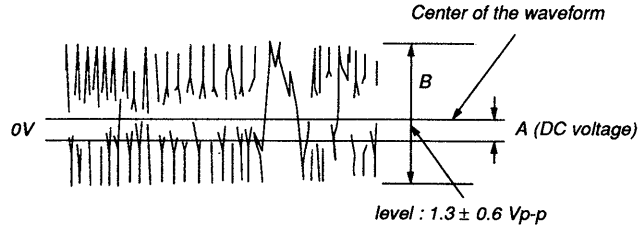
E-F Balance (Traverse) Check



Procedure :

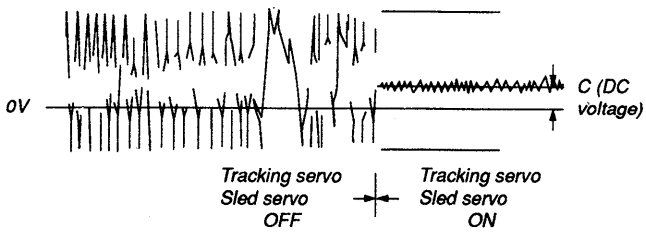
1. Connect oscilloscpe to test point TP (TE) on BD board.
2. Turned Power switch on.
3. Connect the SL103 and SL104 on the VIDEO board with solder.
4. Put disc (YEDS-18) in to play the number five track.
5. Press the [MENU –] button. (The tracking servo and the sledding servo are turned OFF.)
6. Check the level B of the oscilliscope's waveform and the A (DC voltage) of the center of the Traverse waveform.
   Confirm the following :
   A/B x 100 = less than ± 22%

Traverse waveform



7. Press the [MENU –] button. (The tracking servo and sledding servo are turned ON.) Confirm the C (DC voltage) is almost equal to the A (DC voltage) is step 6.

Traverse waveform

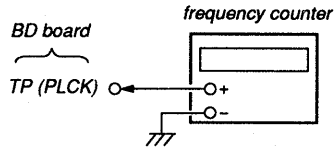


8. Remove the soldering installed in step 3.

RF PLL Free-run Frequency Check

Procedure :

1. Connect frequency counter to TP (PLCK) with lead wire.

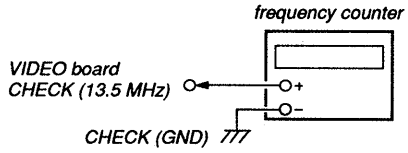


2. Turned Power switch on.
3. Put the disc (YEDS-18) in to play the number five track. Confirm that reading on frequency counter is 4.3218MHz.

VIDEO SECTION

Frequency adjustment (NTSC)

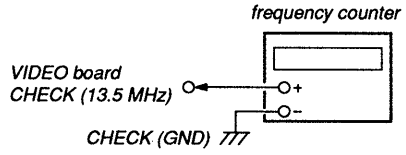
1. Connect the frequency counter to check point of the VIDEO board.



2. Color system switch (S501) select to NTSC and turn the POWER switch ON.
3. Adjust CT419 of the VIDEO board so that the frequency counter read 13.5MHz ± 40Hz at STOP condition.

Frequency adjustment (PAL)

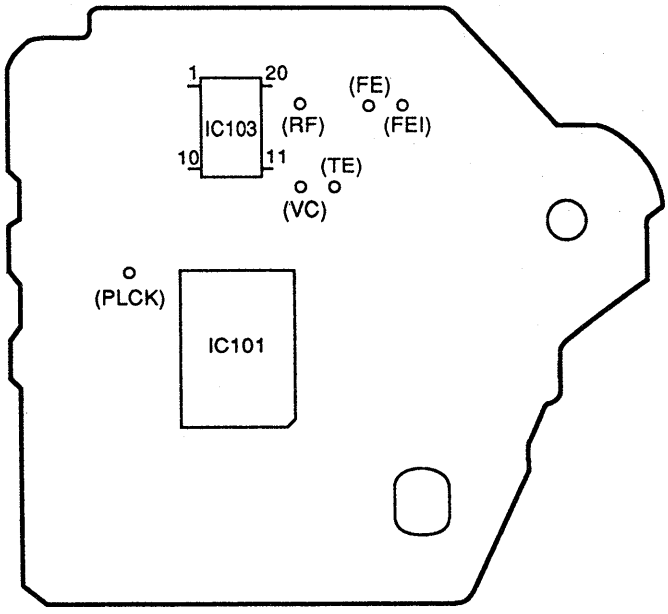
1. Connect the frequency counter to check point of the VIDEO board.



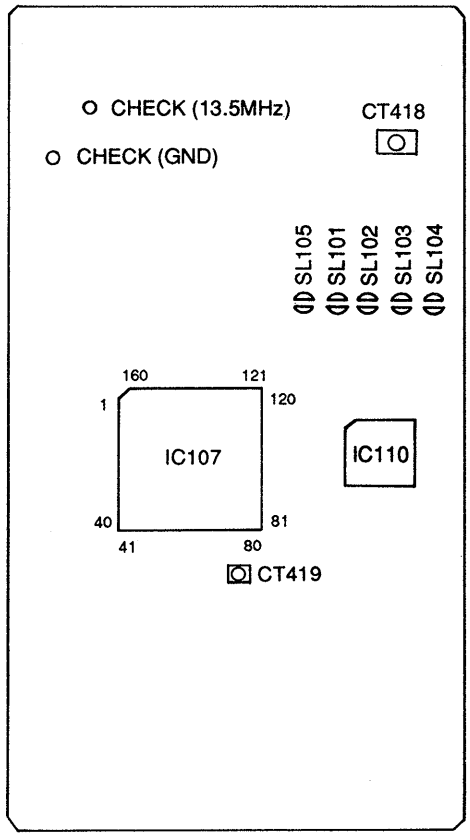
2. Color system switch (S501) select to PAL and turn the POWER switch ON.
3. Adjust CT418 of the VIDEO board so that the frequency counter read 13.5 MHz ± 40Hz at STOP condition.

Adjustment Location :

[BD BOARD] — SIDE A —

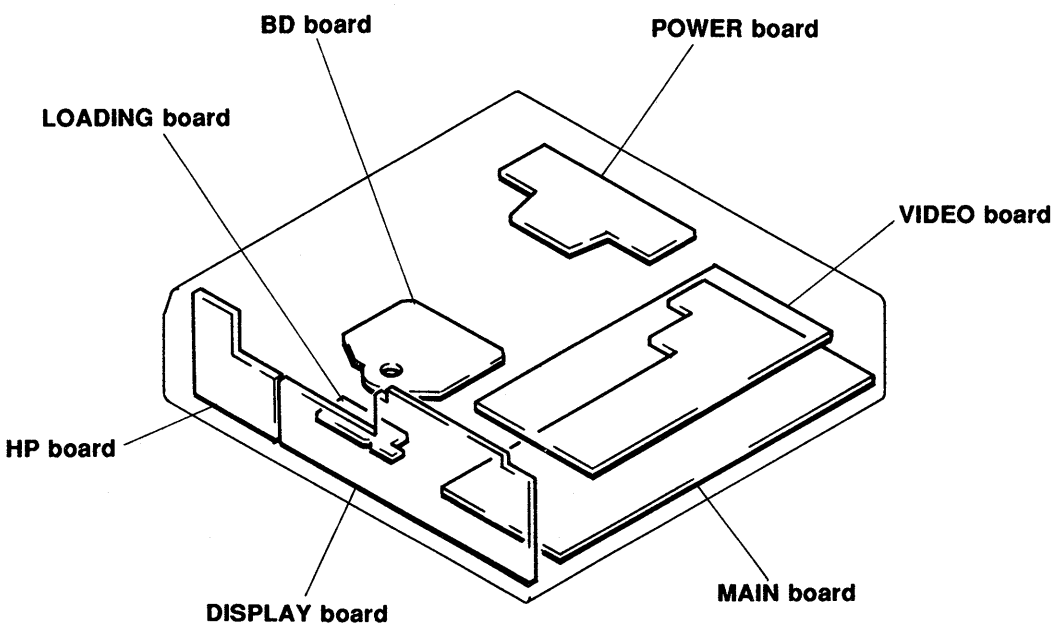


[VIDEO BOARD] — SIDE A —



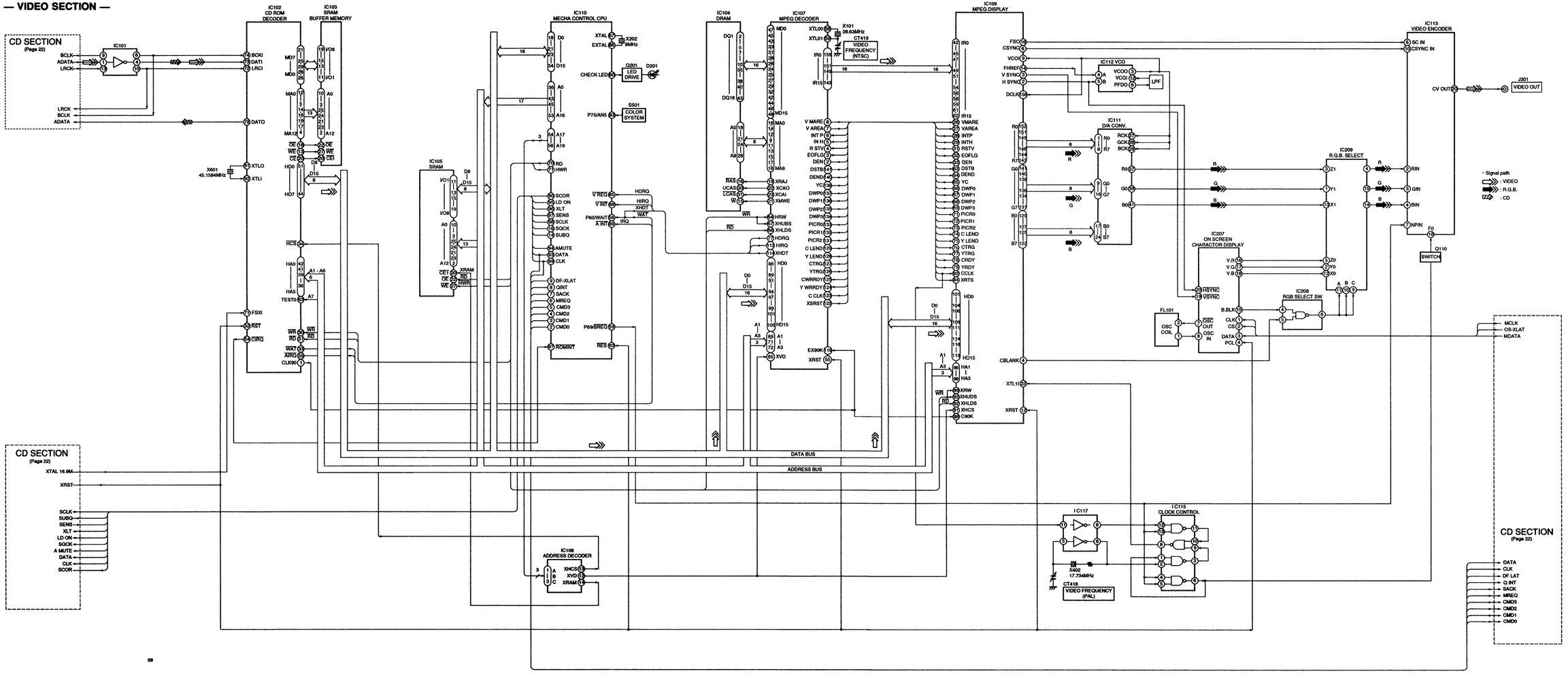
SECTION 6
DIAGRAMS

6-1. CIRCUIT BOARDS LOCATION

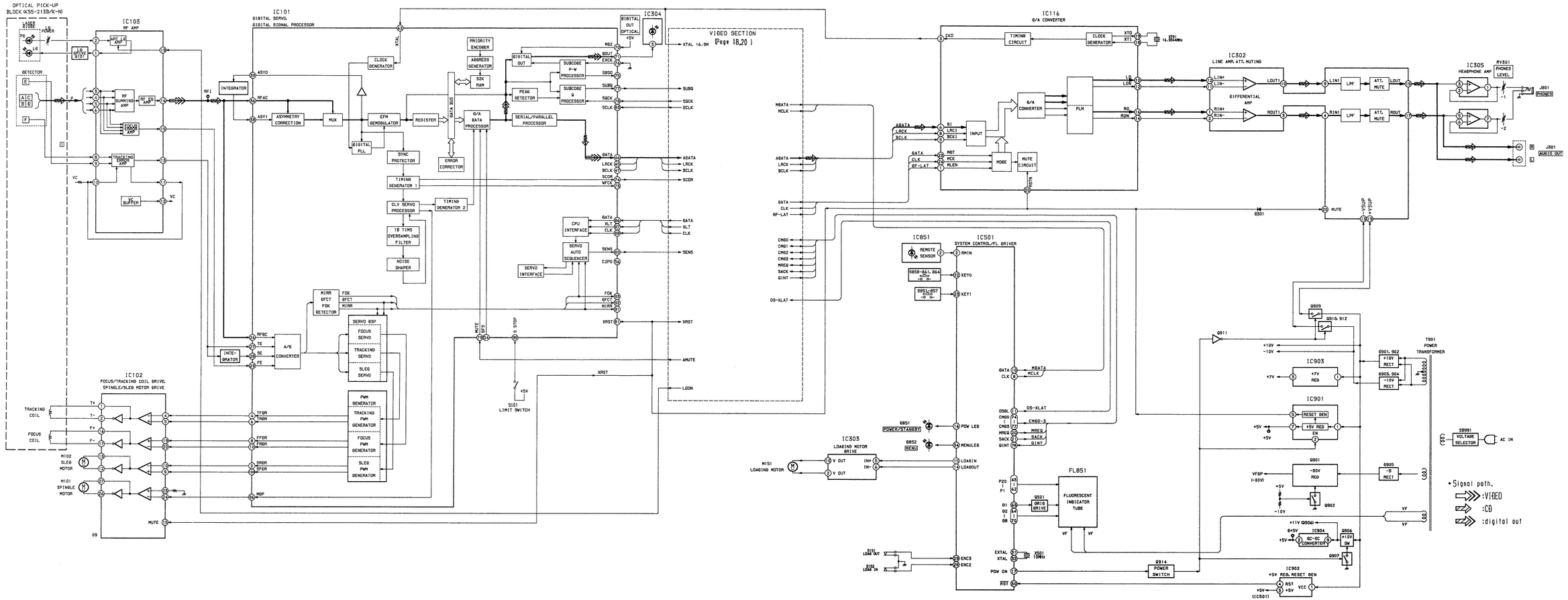


6-2. BLOCK DIAGRAMS

— VIDEO SECTION —



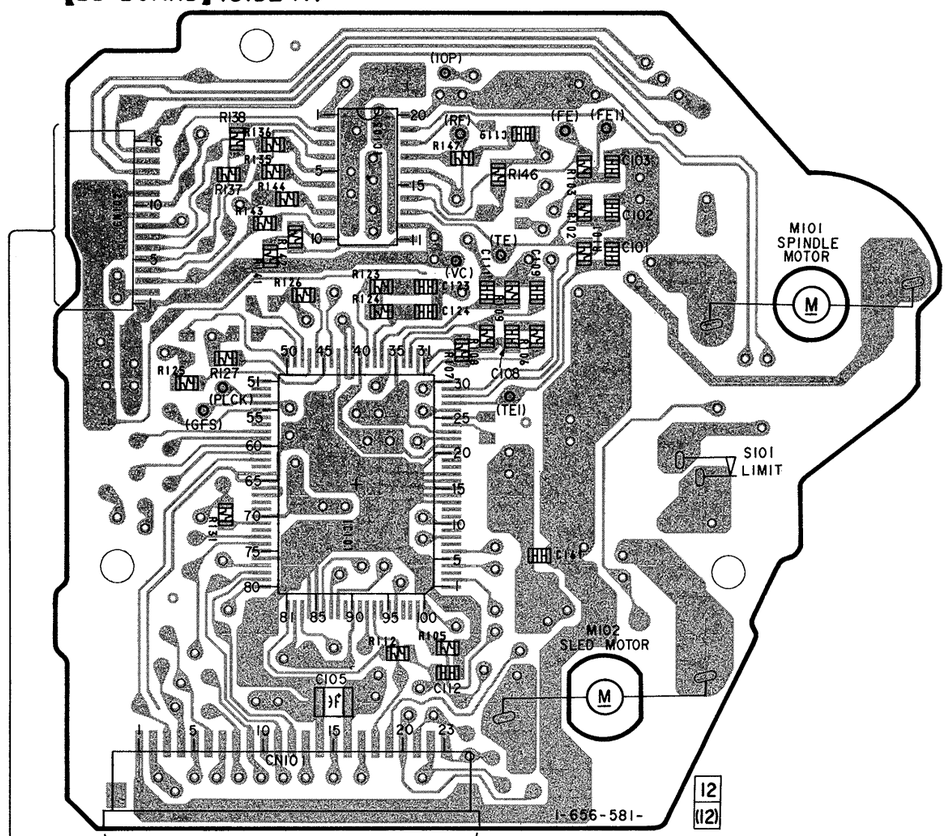
— CD SECTION —


OPTICAL PICK-UP BLOCK (KSS-213B/K-N)
IC103 RF AMP
IC101 DIGITAL SERVO, DIGITAL SIGNAL PROCESSOR
IC304 DIGITAL OUT OPTICAL
VIDEO SECTION (Page 18,20)
IC114 D/A CONVERTER
IC302 LINE AMP, ATT, MUTING
IC305 HEADPHONE AMP
IC102 FOCUS/TRACKING COIL DRIVE, SPINDLE/SLED MOTOR DRIVE
IC303 LOADING MOTOR DRIVE
IC851 REMOTE SENSOR
IC501 SYSTEM CONTROL/FL DRIVER
IC903
IC901
IC904 DC-DC CONVERTER
IC902 +5V REG, RESET GEN
FL851 FLUORESCENT INDICATOR TUBE
T901 POWER TRANSFORMER
SB991 VOLTAGE SELECTOR
AC IN
JB01 PHONES
JB01 AUDIO OUT
RV301 PHONES LEVEL
INTEGRATOR
RF SUMMING AMP
RF EQ AMP
FOCUS ERROR AMP
TRACKING ERROR AMP
VC BUFFER
APC I-V AMP
I-V (I-V) AMP
ASYMMETRY CORRECTION
MUX
EFM DEMODULATOR
REGISTER
SYNC PROTECTOR
ERROR CORRECTOR
TIMING GENERATOR 1
TIMING GENERATOR 2
CLV SERVO PROCESSOR
1B TIMS OVERSAMPLING FILTER
NOISE SHAPER
CLOCK GENERATOR
DIGITAL PLL
PRIORITY ENCODER
ADDRESS GENERATOR
32K RAM
DIGITAL OUT
SUBCODE P-W PROCESSOR
SUBCODE Q PROCESSOR
PEAK DETECTOR
D/A DATA PROCESSOR
SERIAL/PARALLEL PROCESSOR
CPU INTERFACE
SERVO AUTO SEQUENCER
SERVO INTERFACE
MIRR DETECTOR
FOK DETECTOR
INTE-GRATOR
A/B CONVERTER
SERVO DSP
FOCUS SERVO
TRACKING SERVO
SLED SERVO
PWM GENERATOR
TRACKING PWM GENERATOR
FOCUS PWM GENERATOR
SLED PWM GENERATOR
MUTE
S101 LIMIT SWITCH
TRACKING COIL
FOCUS COIL
M102 SLED MOTOR
M101 SPINDLE MOTOR
XTAL 16.9M
SUBQ
SQCK
SCLK
ADATA
LRCK
BCLK
SCOR
WFCK
DATA
XLT
CLK
SENS
C2PO
FOK
EFCT
MIRR
XRST
AMUTE
LOON
TIMING CIRCUIT
CLOCK GENERATOR
G/A CONVERTER
INPUT
MODE
MUTE CIRCUIT
PLM
LOUT
ROUT
LPF
ATT, MUTE
DIFFERENTIAL AMP
MUTE
+5VUP
+5VSP
REMOTE SENSOR
SYSTEM CONTROL/FL DRIVER
KEY0
KEY1
POW LED
MENULED
LOADIN
LOADOUT
LOADING MOTOR
POWER/STANDBY
MENU
OS-XLAT
MDATA
MCLK
MREQ
SACK
SINT
FLUORESCENT INDICATOR TUBE
X501 10MHz
POW ON
RST
POWER SWITCH
+10V REG
-10V REG
+7V REG
RESET GEN
+5V REG
-30V REG
+11V (Q904)
+5V (IC501)
VF
VFDP (-30VF)
Q909
Q910, 912
Q911
Q901, 902 +10V RECT
Q903, 904 -10V RECT
Q905 -B RECT
Q906 P-ON SW
Q907
Q914 POWER SWITCH
• Signal path.
:VIDEO
:CD
:digital out

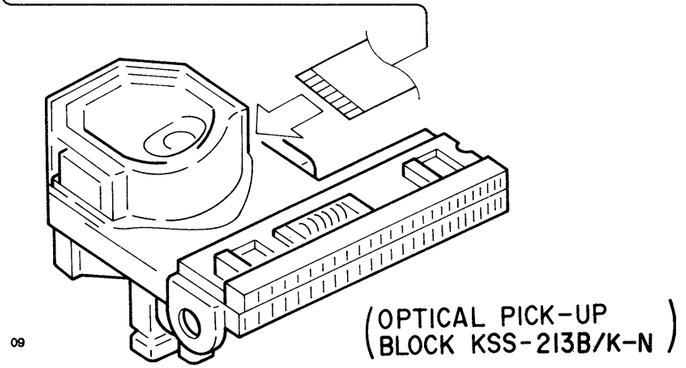
6-3. PRINTED WIRING BOARD — BD SECTION —

• See page 17 for Circuit Boards Location.

【BD BOARD】(SIDE A)



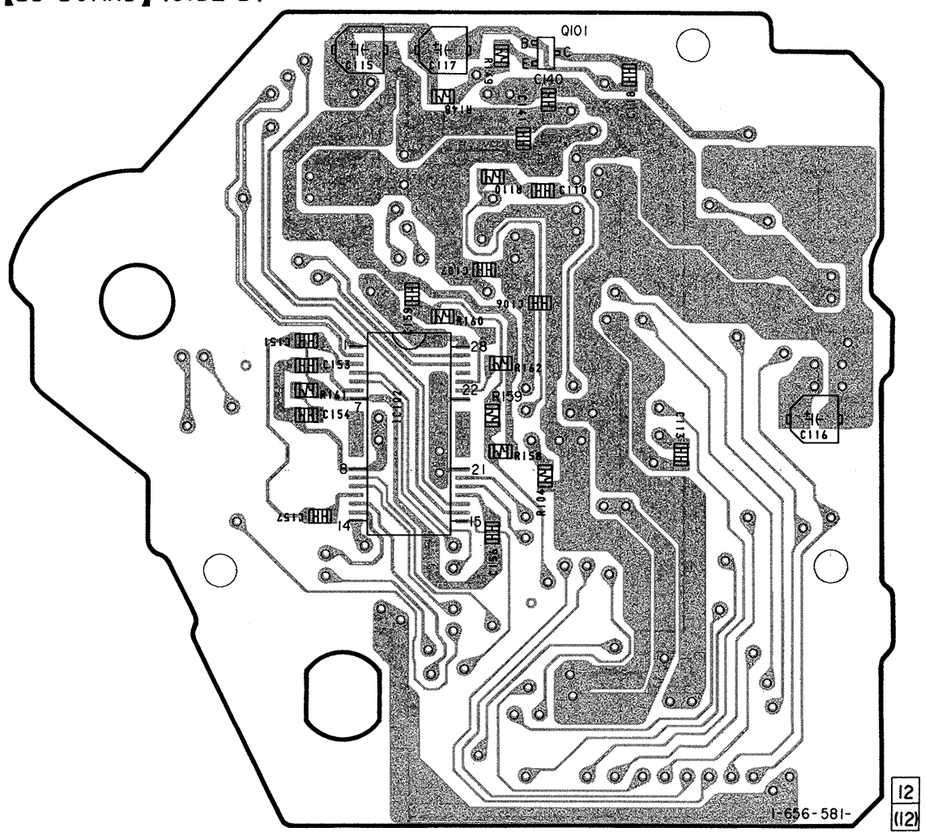
A VIDEO BOARD CN101 (Page 44)



(OPTICAL PICK-UP BLOCK KSS-213B/K-N)

09

【BD BOARD】(SIDE B)



• **Semiconductor Location**

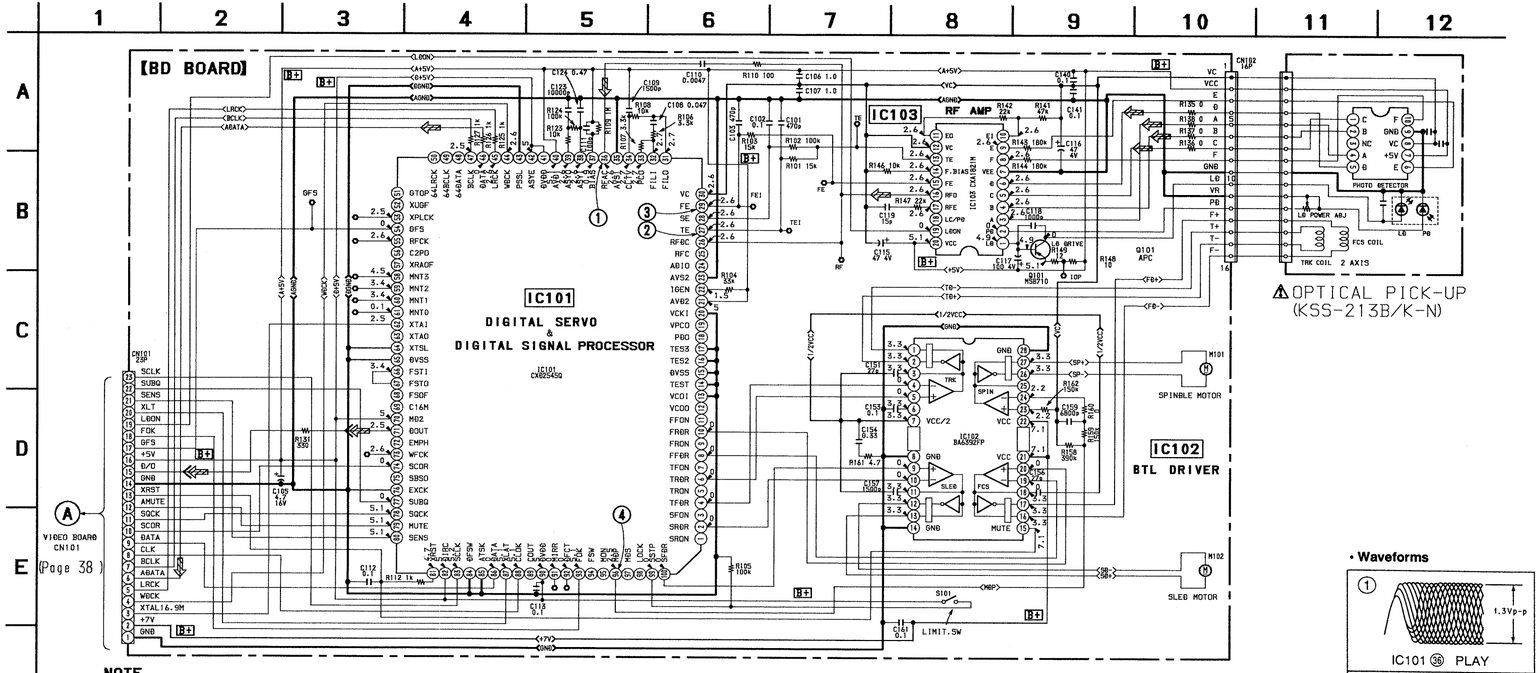
Ref. No.	Location
IC101	C-2
IC102	C-7
IC103	B-2
Q101	A-8

Note:

- ○—— : parts extracted from the component side.
- ○ : Through hole.
- ▒▒ : Pattern from the side which enable seeing. (The other layer's patterns are not indicated.)

6-4. SCHEMATIC DIAGRAM — BD SECTION —

• See page 48 for IC Pin Functions. (IC101)



NOTE

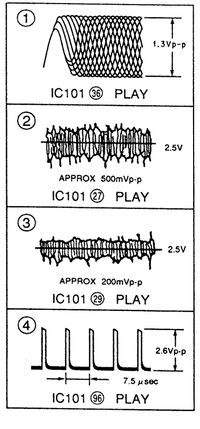
- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- B+ :B+ Line.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark: STOP
- Voltages are taken with a VOM (Input impedance 10MΩ).
  Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.

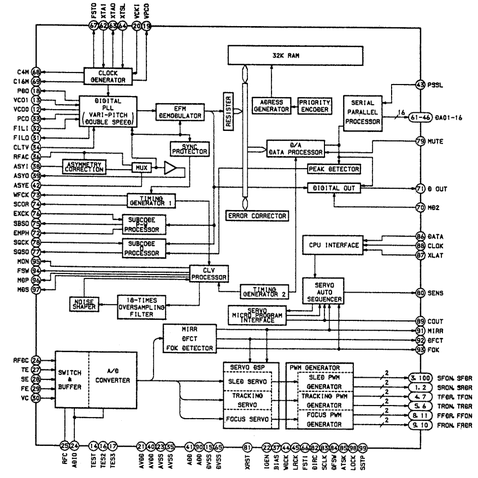
- Signal path.
  ⇨ : CD
  ⇛ : digital out

• Waveforms

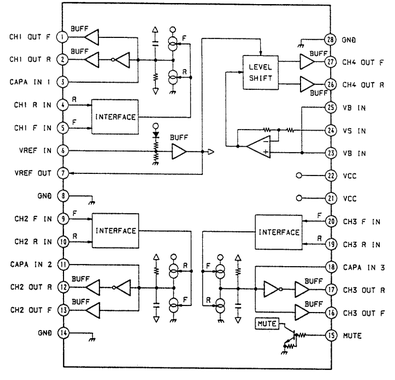


• IC Block Diagrams

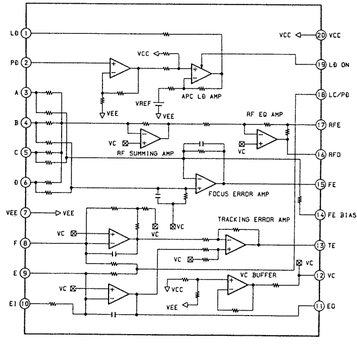
IC101 CXD2545Q



IC102 BA6392FP



IC103 CXA1821M



6-5. PRINTED WIRING BOARD — MAIN SECTION —

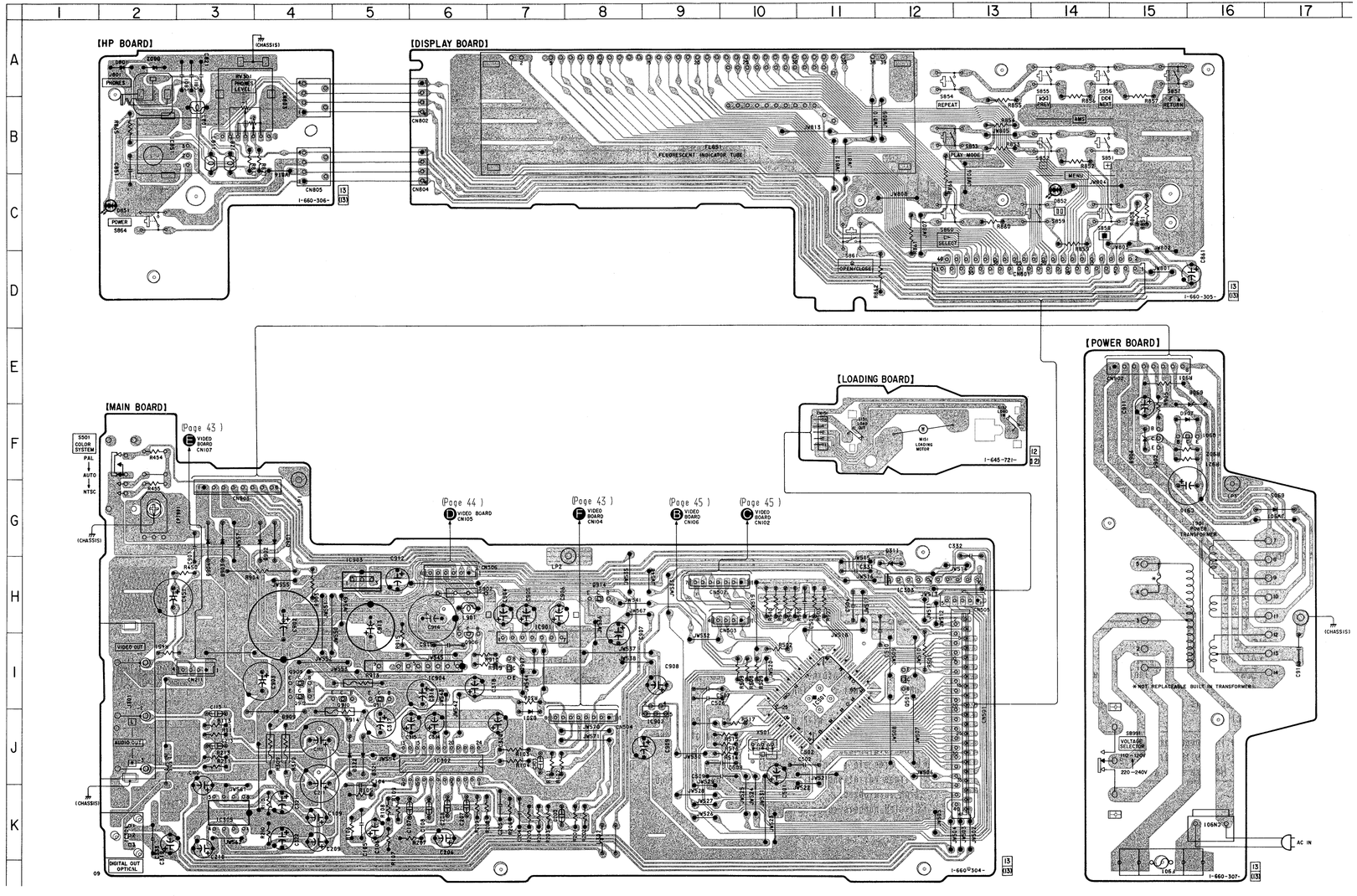
• See page 17 for Circuit Boards Location.

• **Semiconductor Location**

Ref. No.	Location
D301	I-7
D311	H-12
D321	J-5
D322	J-5
D801	A-2
D802	A-2
D851	C-2
D852	C-14
D901	G-4
D902	G-4
D903	G-3
D904	G-3
D905	D-17
D906	F-15
D907	F-15
D908	F-15
D909	I-4
IC302	J-6
IC303	H-12
IC304	K-2
IC305	K-3
IC501	I-11
IC851	B-2
IC901	H-7
IC902	I-9
IC903	H-5
IC904	I-6
Q501	I-12
Q901	F-15
Q902	F-15
Q906	H-6
Q907	I-7
Q909	I-4
Q910	I-4
Q911	I-5
Q912	I-4
Q914	H-8

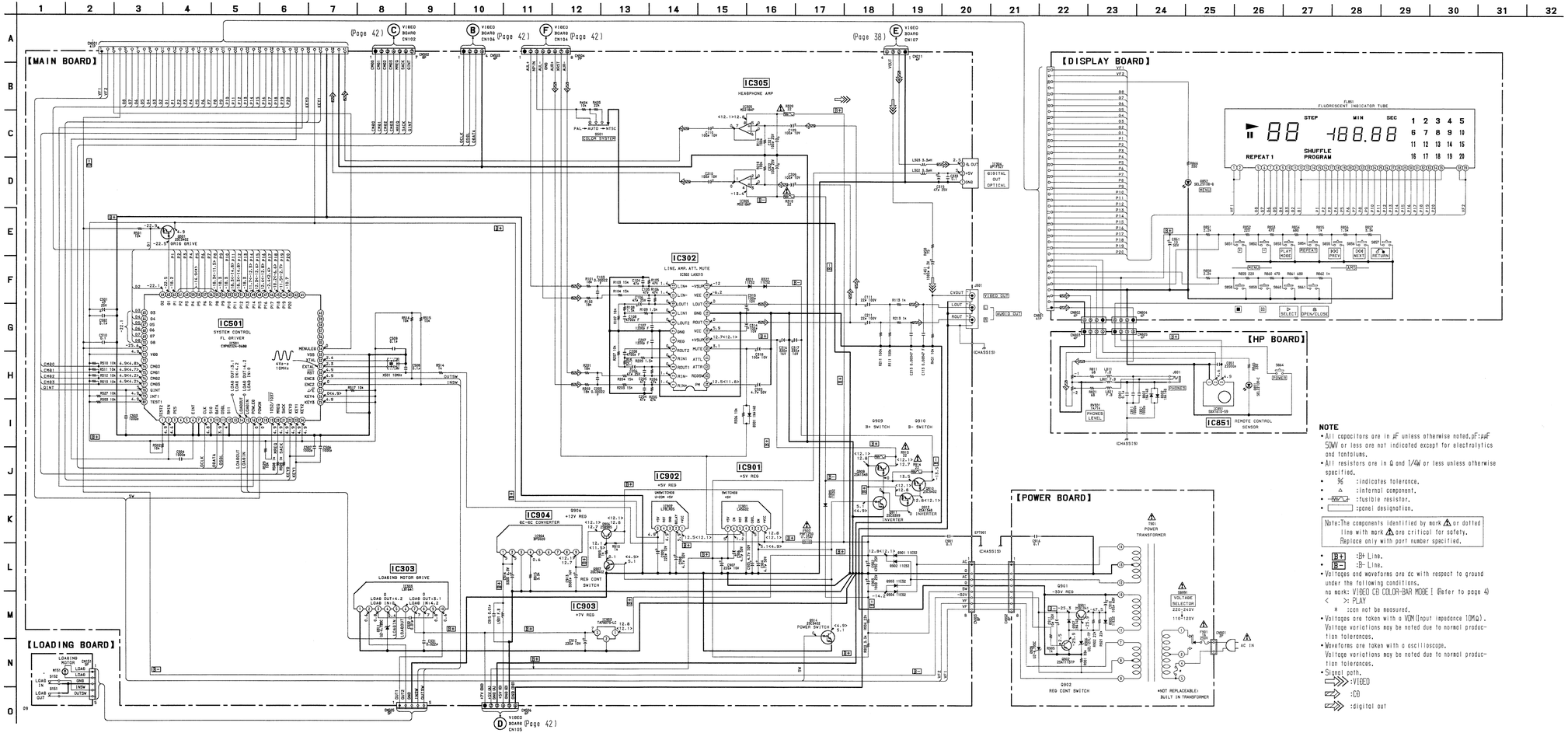
Note:

- ○——: parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- △ : internal component.
- ▨ : Pattern from the side which enable seeing.



6-6. SCHEMATIC DIAGRAM — MAIN SECTION —

- See page 47, 48 for IC Block Diagrams.
- See page 65 for IC Pin Functions. (IC501)



NOTE

- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantaliums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- % : indicates tolerance.
- Δ : internal component.
- : variable resistor.
- : panel designation.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- B+ : B+ Line.
- B- : B- Line.
- Voltages and waveforms are dc with respect to ground under the following conditions.
  no mark: VIDEO CD COLOR-BAR MODE (Refer to page 4)
  < > : PLAY
  * : can not be measured.
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path.
  : VIDEO
  : CD
  : digital out

6-7. SCHEMATIC DIAGRAM — VIDEO SECTION —

• See page 51 to 64 for IC Pin Functions. (IC102, 107, 109, 110)

【VIDEO BOARD】

NOTE

- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- %: Indicates tolerance.
- B+: +B Line.
- B−: −B Line.
- ■: Adjustment for repair.
- Voltages and waveforms are dc with respect to ground under the following conditions.
  no mark: VIDEO CD COLOR-BAR MODE 1 (Refer to page 4)
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  - ⇨: VIDEO
  - ➡: RGB
  - ⇨: CD
  - ⇨: digital out

IC104 DRAM

IC112 VCO

IC209 R & B SELECT

IC208 R & B SELECT SWITCH

IC207 ON SCREEN CHARACTER DISPLAY

IC111 D/A CONVERTER CXD1178Q

IC109 MPEG DISPLAY CXD1817Q

IC107 MPEG DECODER CXD1820Q

IC113 VIDEO ENCODER

IC117 INVERTER

IC115 CLOCK CONTROL

IC101 INVERTER

IC102 CD ROM DECODER CXD2514Q

IC105 DRAM

IC108 AUDIO DATA SELECTOR/ ADDRESS DECODER

IC110 MECHA CONTROL CPU

IC103 BUFFER MEMORY

IC116 DIGITAL FILTER D/A CONVERTER

(Page 27) (Page 34) (Page 35)

• Waveforms

1 — 3Vp-p — 44.1kHz — IC102 (72)

2 — 5Vp-p — 2.1MHz — IC102 (74)

3 — 5Vp-p — 45.2MHz — IC102 (9)

4 — 3.3Vp-p — 8MHz — IC110 (66)

5 — 5Vp-p — IC109 (2)

6 — 5Vp-p — IC109 (3)

7 — 5Vp-p — IC109 (6)

8 — 5Vp-p — 16.9MHz — IC109 (22)

9 — 4.4Vp-p — 26.6MHz — IC107 (58)

10 — 3.2Vp-p — 13.5MHz — IC111 (27)

11 — 1.2Vp-p — IC111 (37)

12 — 1.2Vp-p — IC111 (36)

13 — 1.2Vp-p — IC111 (41)

14 — 2Vp-p — 5.08MHz — IC113 (6)

15 — 2.6Vp-p — IC113 (20)

16 — 3.9Vp-p — 33.87MHz — IC116 (3)

17 — 5.4Vp-p — 2.1MHz — IC116 (5)

18 — 5Vp-p — 4.6MHz — IC116 (6)

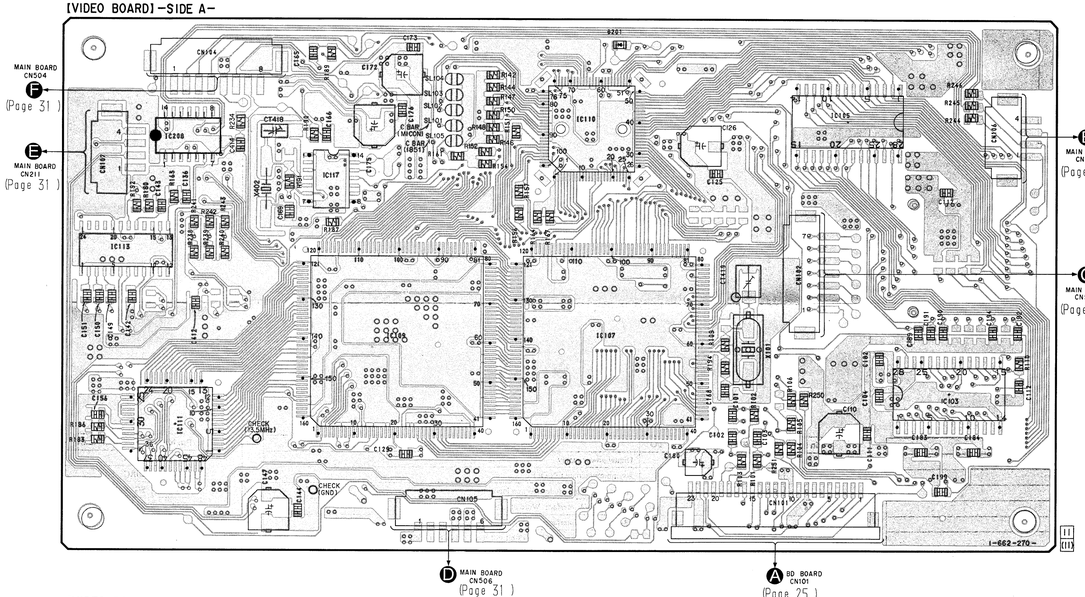
19 — 4.4Vp-p — IC116 (16)

20 — 5.6Vp-p — 12.74MHz — IC117 (6)

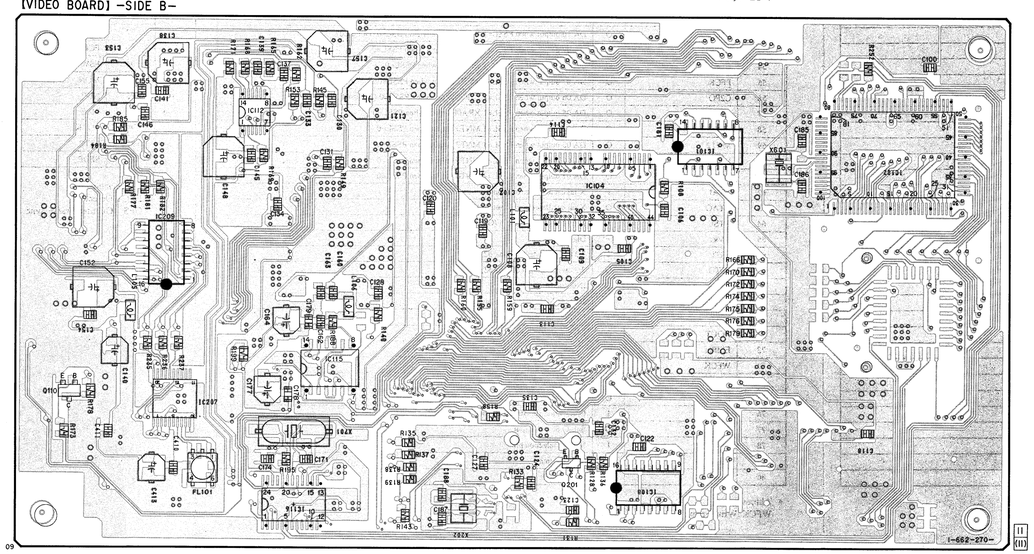
6-8. PRINTED WIRING BOARD — VIDEO SECTION —

• See page 17 for Circuit Boards Location.

[VIDEO BOARD] –SIDE A–



[VIDEO BOARD] –SIDE B–



• **Semiconductor Location**

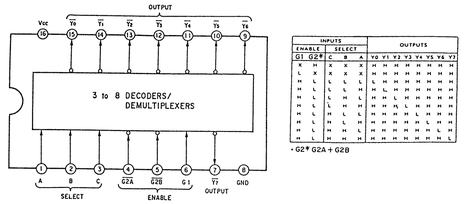
Ref. No.	Location
D201	A-7
IC101	H-8
IC102	H-10
IC103	E-10
IC104	H-7
IC105	B-9
IC107	D-7
IC108	K-8
IC109	D-5
IC110	B-7
IC111	E-3
IC112	H-4
IC113	C-2
IC115	J-5
IC116	K-4
IC117	B-4
IC207	J-3
IC208	B-3
IC209	I-3
Q110	J-2
Q201	K-7

Note:

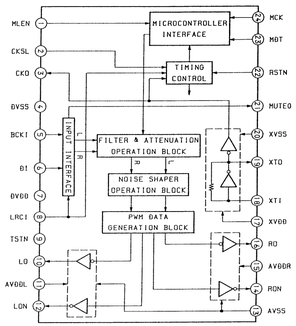
- ⟜—: parts extracted from the component side.
- ○ : Through hole.
- ▒▒▒: Pattern from the side which enable seeing. (The other layer's patterns are not indicated.)

• **IC Block Diagrams**

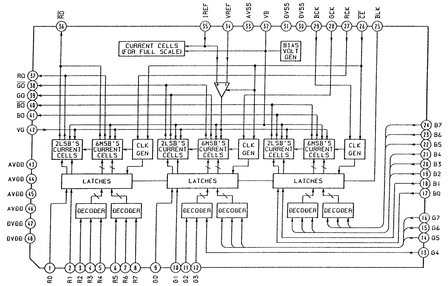
IC108 74HC138



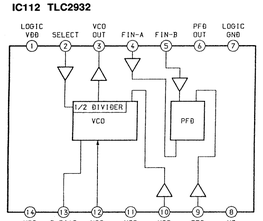
IC116 SM5876AM



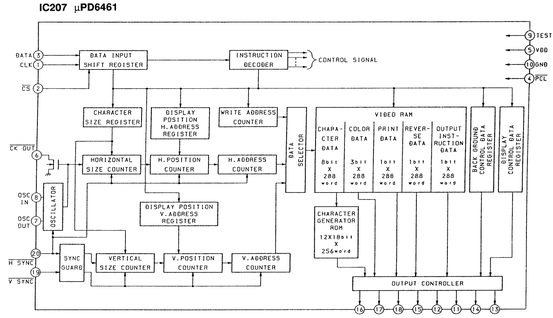
IC111 CXD1178Q



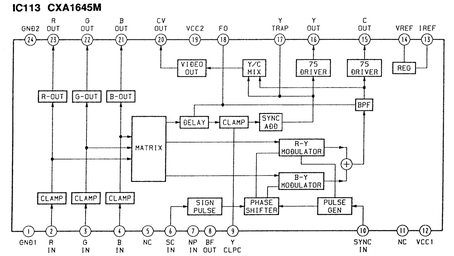
IC112 TLC2932



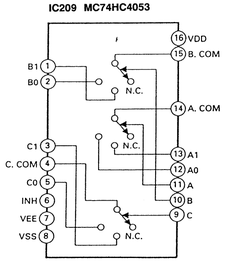
IC207 μPD6461



IC113 CXA1645M

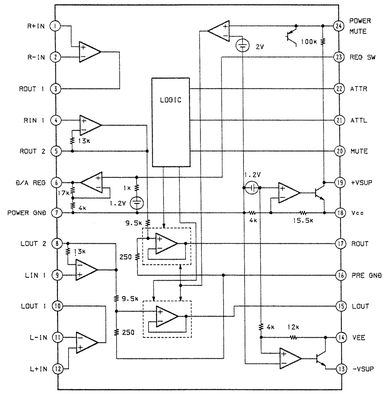


IC209 MC74HC4053

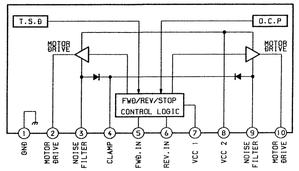


• IC Block Diagrams

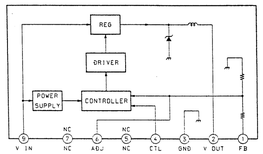
IC302 LA9215



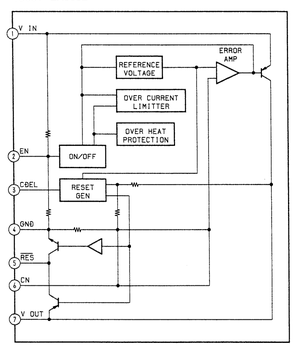
IC303 LB1641



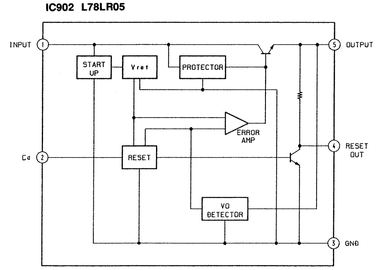
IC904 BP5020



IC901 LA5602



IC902 L78LR05



6-9. IC PIN FUNCTIONS

• IC101 DIGITAL SIGNAL PROCESSOR (CXD2545Q)/BD board

Pin No.	Pin Name	I/O	Function
1	SRON	O	Sled drive output (Not used)
2	SRDR	O	Sled drive output
3	SFON	O	Sled drive output (Not used)
4	TFDR	O	Tracking drive output
5	TRON	O	Tracking drive output (Not used)
6	TRDR	O	Tracking drive output
7	TFON	O	Tracking drive output (Not used)
8	FFDR	O	Focus drive output
9	FRON	O	Focus drive output (Not used)
10	FRDR	O	Focus drive output
11	FFON	O	Focus drive output (Not used)
12	VCOO	O	VCO output for analog EFM PLL (Not used)
13	VCOI	I	VCO output for analog EFM PLL (Ground)
14	TEST	I	TEST pin connected normally to Ground
15	DVss	–	Digital Ground
16	TES2	I	TEST pin connected normally to Ground
17	TES3	I	TEST pin connected normally to Ground
18	PDO	O	Charge-pump output for analog EFM PLL (Not used)
19	VPCO	O	Charge-pump output for variable pitch PLL (Not used)
20	VCKI	I	Clock input from variable pitch external VCO (Ground)
21	AVD2	–	Analog power supply
22	IGEN	I	Power supply pin for operational amplifiers
23	AVS2	–	Analog Ground
24	ADIO	I	(Not used)
25	RFC	O	(Not used)
26	RFDC	I	RF signal input
27	TE	I	Tracking error signal input
28	SE	I	Sled error signal input
29	FE	I	Focus error signal input
30	VC	I	Center voltage input pin
31	FILO	O	Filter output for master PLL
32	FILI	I	Filter input for master PLL
33	PCO	O	Charge-pump output for master PLL
34	CLTV	I	Control voltage input for master VCO
35	AVSI	–	Analog Ground
36	RFAC	I	EFM signal input
37	BIAS	I	Asymmetry circuit constant current input
38	ASYI	I	Asymmetry comparate voltage input
39	ASYO	O	EFM full swing output
40	AVDI	–	Analog power supply

• Abbreviation
EFM :Eight to Fourteen Modulation
PLL :Phase Locked Loop
VCO :Voltage Controlled Oscillator

Pin No.	Pin Name	I/O	Function
41	DVDD	–	Digital power supply
42	ASYE	I	Asymmetry circuit ON/OFF
43	PSSL	I	Audio data output mode selection input
44	WDCK	O	48-bit slot D/A interface. Word clock.
45	LRCK	O	48-bit slot D/A interface. LR clock.
46	DATA	O	DA 16 output when PSSL=1.48-bit slot serial data when PSSL=0
47	BCLK	O	DA 15 output when PSSL=1.48-bit slot data when PSSL=0
48	64DATA	O	DA 14 output when PSSL=1.64-bit slot data when PSSL=0 (Not used)
49	64BCLK	O	DA 13 output when PSSL=1.64-bit slot data when PSSL=0 (Not used)
50	64LRCK	O	DA 12 output when PSSL=1.64-bit slot data when PSSL=0 (Not used)
51	GTOP	O	DA 11 output when PSSL=1.GTOP output when PSSL=0 (Not used)
52	XUGF	O	DA 10 output when PSSL=1.XUGF output when PSSL=0 (Not used)
53	XPLCK	O	DA 09 output when PSSL=1.XPLCK output when PSSL=0
54	GFS	O	DA 08 output when PSSL=1.GFS output when PSSL=0
55	PFCK	O	DA 07 output when PSSL=1.RFCK output when PSSL=0
56	C2PO	O	DA 06 output when PSSL=1.C2PO output when PSSL=0 (Not used)
57	XRAOF	O	DA 05 output when PSSL=1.XRA0F output when PSSL=0
58	MNT3	O	DA 04 output when PSSL=1.MNT3 output when PSSL=0
59	MNT2	O	DA 03 output when PSSL=1.MNT2 output when PSSL=0
60	MNT1	O	DA 02 output when PSSL=1.MNT1 output when PSSL=0
61	MNT0	O	DA 01 output when PSSL=1.MNT0 output when PSSL=0
62	XTAI	I	X'tal oscillator circuit input
63	XTAO	O	X'tal oscillator circuit output (Not used)
64	XTSL	I	X'tal selection input pin (Ground)
65	DVss	–	Digital Ground
66	FST1	I	2/3 divider output of pins 62, 63
67	FSTO	O	2/3 divider output of pins 62, 63
68	FSOF	O	(Not used)
69	C16M	O	16.9344 MHz output (Not used)
70	MD2	I	Digital-out ON/OFF control pin (+5V)
71	DOUT	O	Digital-out output pin
72	EMPH	O	Playback disc output in emphasis mode (Not used)
73	WFCK	O	WFCK output
74	SCOR	O	Sub-code sync output
75	SBSO	O	Sub-P through Sub-W serial output (Not used)
76	EXCK	I	Clock input for SBS0 read-out (Ground)
77	SUBQ	O	Sub-Q 80-bit output
78	SQCK	I	Muting selection pin
79	MUTE	I	SENS output
80	SENS	O	System reset

• Abbreviation
WFCK :Write Frame Clock

Pin No.	Pin Name	I/O	Function
81	XRST	I	System reset
82	DIRC	I	Used in 1-track jump mode (+5v)
83	SCLK	I	SENS serial data read-out clock
84	DFSW	I	Defect selection pin (Ground)
85	ATSK	I	Input pin for anti-shock (Ground)
86	DATA	I	Serial data input, supplied from CPU
87	XLAT	I	Latch input, supplied from CPU
88	CLOK	I	Serial data transfer clock input, supplied from CPU
89	COUT	O	Numbers of track counted signal output (Not used)
90	DVDD	–	Digital power supply
91	MIRR	O	Mirror signal output
92	DFCT	O	Defect signal output
93	FOK	O	Focus OK output
94	FSW	O	Output to select spindle motor output filter (Not used)
95	MON	O	Output to control ON/OFF of spindle motor (Not used)
96	NDP	O	Output to control spindle motor servo
97	MDS	O	Output to control spindle motor servo (Not used)
98	LOCK	O	GFS is sampled by 460 Hz. H when GFS is H (Not used)
99	SSTP	I	Input signal to detect disc inner most track
100	SFDR	O	Sled drive output

• Abbreviation
DFCT:Defect
GFS :Guarded Frame Sync

- **IC102 CD ROM DECODER (CXD2741Q)/VIDEO board**

Pin No.	Pin Name	I/O	Function
1	CLK90	O	90 kHz clock output for the system clock counter
2	Vss	–	Ground
3	VDD	–	Power supply (+5V)
4	MA12	O	Buffer memory address
5 to 12	MA7 to MA0	O	
13	$\overline{WE}$	O	Buffer memory write negative-logic signal
14	MA8	O	Buffer memory address
15	Vss	–	Ground
16	MA9	O	Buffer memory address
17	MA11	O	
18	$\overline{OE}$	O	Buffer memory output enable negative-logic signal
19	MA10	O	Buffer memory address
20	$\overline{CE}$	O	Buffer memory chip enable negative-logic signal
21 to 25	MD7 to MD3	I/O	Buffer memory data bus
24	HDBP	–	Not used
26	MD0	I/O	Buffer memory data bus
27	Vss	–	Ground
28, 29	MD1, MD2	I/O	Buffer memory data bus
30	$\overline{WR}$	I	Write strobe negative-logic signal for the CPU main IC internal register
31	$\overline{RD}$	I	Read strobe negative-logic signal for the CPU main IC internal register
32	$\overline{RST}$	I	Reset negative-logic signal
33	$\overline{WAT}$	O	Wait output
34	$\overline{HCS}$	I	Chip select negative-logic signal from the host
35	Vss	–	Ground
36 to 39	HA5 to HA2	I	Address bus
40	Vss	–	Ground
41, 42	HA1, HA0	I	Address bus
43	Vss	–	Ground
44 to 51	HD7 to HD0	I/O	Host data bus
52	Vss	–	Ground
53	VDD	–	Power supply (+5V)
54	$\overline{CIRQ}$	O	Interrupt request signal to CPU
55	$\overline{AIRQ}$	O	Interrupt request output signal to IC110
56	$\overline{CDRQ}$	–	Not used
57	$\overline{ADRQ}$	–	
58	$\overline{CACK}$	–	Connected to the power supply (+5V)
59	$\overline{AACK}$	–	
60	$\overline{CRDY}$	–	Not used
61	$\overline{ARDY}$	–	
62	VDD	–	Power supply (+5V)
63	TEST0	I	Address bus

Pin No.	Pin Name	I/O	Function
64	TEST1	–	Not used.
65	Vss	–	Ground
66	SCK	–	Connected to the power supply (+5V)
67	SIN	–	Connected to the ground
68	CTPO	–	
69	CTIPI	–	
70	C2P0	I	C2 pointer from the CD player (connected to the ground)
71	FSXI	I	Clock input (16.9 MHz)
72	LRCI	I	LR clock from the CD player
73	DATI	I	Serial data from the CD player
74	BCKI	I	Bit clock from the CD player
75	DOIN	–	Connected to the ground.
76	DOUT	–	Not used
77	Vss	–	Ground
78	DATO	O	Serial data to the CD player
79	LRCO	–	Not used
80	BCKO	–	
81 to 88	TEST2 to TEST9	–	
89	F1024	–	
90	Vss	–	Ground
91	XTLO	O	Clock output (45.1584 MHz)
92	XTLI	I	Clock input (45.1584 MHz)
93 to 100	TEST10 to TEST17	–	Ground

- **IC107 MPEG DECODER (CXD1850Q)/VIDEO board**

Pin No.	Pin Name	I/O	Function
1	Vss	–	Ground
2	DEN	O	Connected to CXD1851Q DEN (Pin 33)
3	EOFLG	I	Connected to CXD1851Q EOFLG (Pin 32)
4	RSTV	I	Connected to CXD1851Q RSTV (Pin 31)
5	INTH	I	Connected to CXD1851Q INTH (Pin 29)
6	INTP	I	Connected to CXD1851Q INTP (Pin 28)
7	VAREA	O	Connected to CXD1851Q VAREA (Pin 27)
8	VMARE	O	Connected to CXD1851Q VMARE (Pin 26)
9	MA3	O	3rd bit of the address to DRAM
10	Vss	–	Ground
11	MA4	O	4th bit of the address to DRAM
12	MA2	O	2nd bit of the address to DRAM
13	MA5	O	5th bit of the address to DRAM
14	MA1	O	1st bit of the address to DRAM
15	MA6	O	6th bit of the address to DRAM
16	MA0	O	0 bit of the address to DRAM
17	MA7	O	7th bit of the address to DRAM
18	MA8	O	8th bit of the address to DRAM
19	XRAS	O	Row address strobe output pin of DRAM
20	VDD	–	+5V power supply
21	XMWE	O	Write enable output pin of DRAM
22	XCA0	O	Column address strobe output pin of DRAM
23	XCA1	O	
24	MD7	I/O	7th bit of the bidirectional data bus of DRAM
25	MD8	I/O	8th bit of the bidirectional data bus of DRAM
26	MD6	I/O	6th bit of the bidirectional data bus of DRAM
27	MD9	I/O	9th bit of the bidirectional data bus of DRAM
28	MD5	I/O	5th bit of the bidirectional data bus of DRAM
29	MD10	I/O	10th bit of the bidirectional data bus of DRAM
30	Vss	–	Ground
31	MD4	I/O	4th bit of the bidirectional data bus of DRAM
32	MD11	I/O	11th bit of the bidirectional data bus of DRAM
33	MD3	I/O	3rd bit of the bidirectional data bus of DRAM
34	BC	–	Not used
35	TCK	–	
36	TDI	–	
37	TENA1	–	
38	TD0	–	
39	VST	I	Test pin. Connected to ground
40	VDD	–	+5V power supply
41	Vss	–	Ground
42	MD12	I/O	12th bit of the bidirectional data bus of DRAM
43	MD2	I/O	2nd bit of the bidirectional data bus of DRAM

Pin No.	Pin Name	I/O	Function
44	MD13	I/O	13th bit of the bidirectional data bus of DRAM
45	MD1	I/O	1st bit of the bidirectional data bus of DRAM
46	MD14	I/O	14th bit of the bidirectional data bus of DRAM
47	MD0	I/O	0 bit of the bidirectional data bus of DRAM
48	MD15	I/O	15th bit of the bidirectional data bus of DRAM
49	MA9	–	Not used
50	Vss	–	Ground
51	XCA2	–	Not used
52	XCA3	–	
53	TST0	–	Test pin. Connected to ground
54	TST1	–	
55	XRST	I	L: Reset input
56	TST2	–	Test pin. Connected to ground
57	Vss	–	Ground
58	XTL0O	O	Output pin for crystal oscillation (28.636363 MHz)
59	XTL0I	I	Input pin for crystal oscillation (28.636363 MHz)
60	VDD	–	+5V power supply
61	DCDG	–	Not used
62	NEWP	–	
63	XHMS	I	"L" chip select signal when the host processor directly accesses the external DRAM
64	HRW	I	XRW/XWR input. Signal indicating read/write when the 68 host is used. "L" signal indicating write cycle when the 86 host is used.
65	XHCS	I	"L" chip select signal when the host processor accesses the internal register
66	XHLDS	I	XHLDS/XRD input. Data strobe signal indicating low byte when the 68 host is used. "L" signal indicating read cycle when the 86 host is used.
67	XHUDS	I	XHUDS/XBHE input. Data strobe signal indicating upper byte when the 68 host is used. Byte High Enable signal when the 86 host is used.
68	HA0	I	0 bit of the address from the host processor
69	HA1	I	1st bit of the address from the host processor
70	Vss	–	Ground
71	HA2	I	2nd bit of the address from the host processor
72	HA3	I	3rd bit of the address from the host processor
73	HA4	I	4th bit of the address from the host processor
74	HA5	I	5th bit of the address from the host processor
75	HA6	I	6th bit of the address from the host processor
76	HA7	I	7th bit of the address from the host processor
77	HDRQ	O	DMA transmission request signal. Open drain output pin which is low active when the 68 host is used and high active when the 86 host is used.
78	CDRDY	–	Not used
79	HA8	I	8th bit of the address from the host processor
80	VDD	–	+5V power supply
81	Vss	–	Ground

- Abbreviation
  DMA : Direct Memory Access

Pin No.	Pin Name	I/O	Function
82	HA9	I	9th bit of the address from the host processor
83	HA10	I	10th bit of the address from the host processor
84	HA11	I	11th bit of the address from the host processor
85	HA12	I	12th bit of the address from the host processor
86	HD0	I/O	0 bit of bidirectional data bus of the host processor
87	HD1	I/O	1st bit of bidirectional data bus of the host processor
88	HD2	I/O	2nd bit of bidirectional data bus of the host processor
89	HD3	I/O	3rd bit of bidirectional data bus of the host processor
90	Vss	–	Ground
91	HD4	I/O	4th bit of bidirectional data bus of the host processor
92	HD5	I/O	5th bit of bidirectional data bus of the host processor
93	HD6	I/O	6th bit of bidirectional data bus of the host processor
94	HD7	I/O	7th bit of bidirectional data bus of the host processor
95	HA13	I	13th bit of the address from the host processor
96	HA14	I	14th bit of the address from the host processor
97	HD8	I/O	8th bit of the bidirectional data bus of the host processor
98	HD9	I/O	9th bit of the bidirectional data bus of the host processor
99	HD10	I/O	10th bit of the bidirectional data bus of the host processor
100	VDD	–	+5V power supply
101	HD11	I/O	11th bit of the bidirectional data bus of the host processor
102	HD12	I/O	12th bit of the bidirectional data bus of the host processor
103	HD13	I/O	13th bit of the bidirectional data bus of the host processor
104	HD14	I/O	14th bit of the bidirectional data bus of the host processor
105	HD15	I/O	15th bit of the bidirectional data bus of the host processor
106	HA15	I	15th bit of the address from the host processor
107	HA16	I	16th bit of the address from the host processor
108	HA17	I	17th bit of address from the host processor. Memory 8 bit access signal when the AT bus is used. 16 bits access at "0" and 8 bits access at "1"
109	HA18	I	18th bit of the address from the host processor. Memory write signal when the AT bus is used.
110	Vss	–	Ground
111	HA19	I	19th bit of the address from the host processor. Memory read signal when the AT bus is used.
112	HIRQ	O	Interrupt request signal to the host processor. Open drain output signal which is low active when 68 host is used and high active when 86 host is used.
113	XRDY	O	Negative logic data ready signal (Not used)
114	XHDT	O	XHDT/XWAT signal. Data transmission completion acknowledge signal when the 68 host is used and data transmission wait signal when the 86 host is used.
115	XHAC	I	Negative logic acknowledge signal during DMA transmission
116	CTP0	I	Input pin which determines the host processor type together with CTP0
117	CTP1	I	Input pin which determines the host processor type together with CTP1
118	C90K	O	90 kHz clock output pin frequency divided inside the LSI. Connected to C90K (Pin 88) of CXD1851Q
119	EX90K	I	90 kHz clock input pin for the system clock counter. Input the external 90 kHz clock or connected to XTAI of CXD2515Q

Pin No.	Pin Name	I/O	Function
120	V_{DD}	–	+5V power supply
121	Vss	–	Ground
122	XSRST	O	Connected to XSRST (Pin 12) of CXD1851Q
123	CCLK	O	Connected to CCLK (Pin 82) of CXD1851Q
124	YWRRDY	I	Connected to YRDY (Pin 79) of CXD1851Q
125	CWRRDY	I	Connected to CRDY (Pin 78) of CXD1851Q
126	YTRG	O	Connected to YTRG (Pin 77) of CXD1851Q
127	CTRG	O	Connected to CTRG (Pin 76) of CXD1851Q
128	YLEND	O	Connected to YLEND (Pin 75) of CXD1851Q
129	CLEND	O	Connected to CLEND (Pin 74) of CXD1851Q
130	Vss	–	Ground
131	PICR2	O	Connected to PICR2 (Pin 73) of CXD1851Q
132	PICR1	O	Connected to PICR1 (Pin 72) of CXD1851Q
133	PICR0	O	Connected to PICR0 (Pin 71) of CXD1851Q
134	DWP3	O	Connected to DWP3 (Pin 69) of CXD1851Q
135	DWP2	O	Connected to DWP2 (Pin 68) of CXD1851Q
136	DWP1	O	Connected to DWP1 (Pin 67) of CXD1851Q
137	DWP0	O	Connected to DWP0 (Pin 66) of CXD1851Q
138	YC	O	Connected to YC (Pin 65) of CXD1851Q
139	Vss	–	Ground
140	DEND	O	Connected to DEND (Pin 64) of CXD1851Q
141	DSTB	O	Connected to DSTB (Pin 63) of CXD1851Q
142	VDD	–	+5V power supply
143	IR15	O	Connected to IR15 (Pin 62) of CXD1851Q
144	IR14	O	Connected to IR14 (Pin 61) of CXD1851Q
145	IR13	O	Connected to IR13 (Pin 59) of CXD1851Q
146	IR12	O	Connected to IR12 (Pin 58) of CXD1851Q
147	IR11	O	Connected to IR11 (Pin 56) of CXD1851Q
148	IR10	O	Connected to IR10 (Pin 54) of CXD1851Q
149	IR9	O	Connected to IR9 (Pin 53) of CXD1851Q
150	Vss	–	Ground
151	IR8	O	Connected to IR8 (Pin 52) of CXD1851Q
152	IR7	O	Connected to IR7 (Pin 51) of CXD1851Q
153	IR6	O	Connected to IR6 (Pin 49) of CXD1851Q
154	IR5	O	Connected to IR5 (Pin 48) of CXD1851Q
155	IR4	O	Connected to IR4 (Pin 47) of CXD1851Q
156	IR3	O	Connected to IR3 (Pin 45) of CXD1851Q
157	IR2	O	Connected to IR2 (Pin 44) of CXD1851Q
158	IR1	O	Connected to IR1 (Pin 43) of CXD1851Q
159	IR0	O	Connected to IR0 (Pin 42) of CXD1851Q
160	V_{DD}	–	+5V power supply

- **IC109 MPEG DISPLAY (CXD1851Q)/VIDEO board**

Pin No.	Pin Name	I/O	Function
1	Vss	–	Ground
2	HSYNC	I/O	Horizontal sync signal input/output. Output pin when the internal sync signal generator is used. Input pin when the external signal source is used.
3	VSYNC	I/O	Vertical sync signal input/output. Output pin when the internal sync signal generator is used. Input pin when the external signal source is used. (Not used)
4	CBLANK	–	} Not used
5	EOFL	–	
6	CSYNC	O	Composite sync signal output.
7	Vss	–	Ground
8	VCOO	–	Not used
9	VCOI	I	VCO input pin. Inputs signals from the external VCO circuit for generating display clocks. PLL consists of frequency dividers within L3I.
10	Vss	–	Ground
11	XINT	I	Selects whether to use the internal sync signal generator or external sync signal generator. External sync signals are used when "1" and Pins 2 to 5 will serve as input pins. Internal sync signals are used when "0" and Pins 2 to 5 will serve as output pins.
12	XRST	I	Internal sync signal generator negative logic reset input.
13	TEST0	I	Test pin. (Connected to ground)
14	FHREF	O	Outputs obtained by frequency dividing clocks from the crystal input. When paints (11st bit) of the SYNGEN register (#1A of indirect register) is made "1", the XTL11 input is frequency divided by 1135 and output. When xntsc="0", it is frequency divided by 910.
15	TEST1	I	Test pin. (Connected to ground)
16	FSC	O	fsc output obtained by frequency dividing XTL11 input (4 fsc) by 1/4.
17	FSC4	O	Output signal obtained by buffering the XTL11 input (4 fsc).
18	CTP0	I	Input pin determining the host processor type together with CTP1.
19	CTP1	I	Input pin determining the host processor type together with CTP0.
20	VDD	–	+5V power supply.
21	XTIL1O	O	Crystal oscillator output. (Not used).
22	XTL1I	I	Crystal oscillator output pin. 4 fsc (14.31818 MHz) crystal is connected to these pins. For NTSC, 4 fsc signals will be output to the CCLK pin (Pin 123) if 8 fsc is used for the CXD1850Q original oscillation. This can be input to this terminal.
23	Vss	–	Ground
24	TEST2	I	} Test pin. (Connected to ground)
25	TEST3	I	
26	VMARE	I	Connected to VMARE (Pin 8) of CXD1850Q.
27	VAREA	I	Connected to VAREA (Pin 7) of CXD1850Q.
28	INTP	O	Connected to INTP (Pin 6) of CXD1850Q.
29	INTH	O	Connected to INTH (Pin 5) of CXD1850Q.
30	Vss	–	GND
31	RSTV	O	Connected to RSTV (Pin 4) of CXD1850Q.
32	EOFLG	O	Connected to BOFLG (Pin 3) of CXD1850Q.
33	DEN	I	Connected to DEN (Pin 2) of CXD1850Q.

Pin No.	Pin Name	I/O	Function
34	BC	–	Not used. (Test terminal)
35	TCK	–	
36	TDI	–	
37	TENA1	–	
38	TDO	–	
39	VST	I	Test pin (Connected to ground)
40	V_{DD}	–	+5V power supply
41	Vss	–	Ground
42	IR0	I	Connected to IR0 (Pin 159) of CXD1850Q.
43	IR1	I	Connected to IR1 (Pin 158) of CXD1850Q.
44	IR2	I	Connected to IR2 (Pin 157) of CXD1850Q.
45	IR3	I	Connected to IR3 (Pin 156) of CXD1850Q.
46	Vss	–	Ground
47	IR4	I	Connected to IR4 (Pin 155) of CXD1850Q.
48	IR5	I	Connected to IR5 (Pin 154) of CXD1850Q.
49	IR6	I	Connected to IR6 (Pin 153) of CXD1850Q.
50	Vss	–	Ground
51	IR7	I	Connected to IR7 (Pin 152) of CXD1850Q.
52	IR8	I	Connected to IR8 (Pin 151) of CXD1850Q.
53	IR9	I	Connected to IR9 (Pin 149) of CXD1850Q.
54	IR10	I	Connected to IR10 (Pin 148) of CXD1850Q.
55	Vss	–	Ground
56	IR11	I	Connected to IR11 (Pin 147) of CXD1850Q.
57	Vss	–	Ground
58	IR12	I	Connected to IR12 (Pin 146) of CXD1850Q.
59	IR13	I	Connected to IR13 (Pin 145) of CXD1850Q.
60	V_{DD}	–	+5V power supply.
61	IR14	I	Connected to IR14 (Pin 144) of CXD1850Q.
62	IR15	I	Connected to IR15 (Pin 143) of CXD1850Q.
63	DSTB	I	Connected to DSTB (Pin 141) of CXD1850Q.
64	DEND	I	Connected to DEND (Pin 140) of CXD1850Q.
65	YC	I	Connected to YC (Pin 138) of CXD1850Q.
66	DWP0	I	Connected to DWP0 (Pin 137) of CXD1850Q.
67	DWP1	I	Connected to DWP1 (Pin 136) of CXD1850Q.
68	DWP2	I	Connected to DWP2 (Pin 135) of CXD1850Q.
69	DWP3	I	Connected to DWP3 (Pin 134) of CXD1850Q.
70	Vss	–	Ground
71	PICR0	I	Connected to PICR0 (Pin 133) of CXD1850Q.
72	PICR1	I	Connected to PICR1 (Pin 132) of CXD1850Q.
73	PICR2	I	Connected to PICR2 (Pin 131) of CXD1850Q.
74	CLEND	I	Connected to CLEND (Pin 129) of CXD1850Q.
75	YLEND	I	Connected to YLEND (Pin 128) of CXD1850Q.

Pin No.	Pin Name	I/O	Function
76	CTRG	I	Connected to CTRG (Pin 127) of CXD1850Q.
77	YTRG	I	Connected to YTRG (Pin 126) of CXD1850Q.
78	CRDY	O	Connected to CRDY (Pin 125) of CXD1850Q.
79	YRDY	O	Connected to YRDY (Pin 124) of CXD1850Q.
80	V_{DD}	–	+5V power supply.
81	Vss	–	Ground
82	CCLK	I	Connected to CCLK (Pin 123) of CXD1850Q.
83	Vss	–	Ground
84	XSRTS	I	Connected to XSRST (Pin 122) of CXD1850Q.
85	Vss	–	Ground
86	EX90K	–	Not used
87	Vss	–	Ground
88	C90K	I	Connected to C90K (Pin 119) of CXD1850Q.
89	XRW	I	HRW/XWR input. Signal indicating read/write when the 68 host is used. Negative logic signal indicating write cycle when the 68 host processor is used.
90	Vss	–	Ground
91	XHCS	I	Negative logic chip select signal when the host processor accesses the internal register.
92	XHLDS	I	XHLDS/XRD input. Data strobe signal indicating low byte when the 68 host is used. Negative logic signal indicating read cycle when the 68 host is used.
93	XHUDS	I	XHUDS/XBHE input. Test strobe signal indicating upper byte when the 68 host is used. Byte high enable signal when the 68 host is used.
94	Vss	–	Ground
95	HA0	I	0 bit of the address from the host processor.
96	HA1	I	1st bit of the address from the host processor
97	HA2	I	2nd bit of the address from the host processor
98	HA3	I	3rd bit of the address from the host processor
99	XCOL	I	Test pin. Set to non-connection.
100	V_{DD}	–	+5V power supply.
101	HD0	I/O	0 bit of bidirectional data bus of the host processor
102	HD1	I/O	1st bit of bidirectional data bus of the host processor
103	HD2	I/O	2nd bit of bidirectional data bus of the host processor
104	HD3	I/O	3rd bit of bidirectional data bus of the host processor
105	Vss	–	Ground
106	HD4	I/O	4th bit of bidirectional data bus of the host processor
107	HD5	I/O	5th bit of bidirectional data bus of the host processor
108	HD6	I/O	6th bit of bidirectional data bus of the host processor
109	HD7	I/O	7th bit of bidirectional data bus of the host processor
110	Vss	–	Ground
111	HD8	I/O	8th bit of the bidirectional data bus of the host processor
112	HD9	I/O	9th bit of the bidirectional data bus of the host processor
113	HD10	I/O	10th bit of the bidirectional data bus of the host processor
114	HD11	I/O	11th bit of the bidirectional data bus of the host processor

Pin No.	Pin Name	I/O	Function
115	Vss	–	Ground
116	HD12	I/O	12th bit of the bidirectional data bus of the host processor
117	HD13	I/O	13th bit of the bidirectional data bus of the host processor
118	HD14	I/O	14th bit of the bidirectional data bus of the host processor
119	HD15	I/O	15th bit of the bidirectional data bus of the host processor
120	VDD	–	+5V power supply.
121	Vss	–	Ground
122	B7	O	B (7) is output in the RGB output mode (ycrgb of indirect register DVR is "1") and Cb (7) is output in the Y/C mode (ycrgb of indirect register DVR is "0")
123	B6	O	B (6) is output in the RGB output mode (ycrgb of indirect register DVR is "1") and Cb (6) is output in the Y/C mode (ycrgb of indirect register DVR is "0")
124	B5	O	B (5) is output in the RGB output mode (ycrgb of indirect register DVR is "1") and Cb (5) is output in the Y/C mode (ycrgb of indirect register DVR is "0")
125	B4	O	B (4) is output in the RGB output mode (ycrgb of indirect register DVR is "1") and Cb (4) is output in the Y/C mode (ycrgb of indirect register DVR is "0")
126	Vss	–	Ground
127	B3	O	B (3) is output in the RGB output mode (ycrgb of indirect register DVR is "1") and Cb (3) is output in the Y/C mode (ycrgb of indirect register DVR is "0")
128	B2	O	B (2) is output in the RGB output mode (ycrgb of indirect register DVR is "1") and Cb (2) is output in the Y/C mode (ycrgb of indirect register DVR is "0")
129	B1	O	B (1) is output in the RGB output mode (ycrgb of indirect register DVR is "1") and Cb (1) is output in the Y/C mode (ycrgb of indirect register DVR is "0")
130	Vss	–	Ground
131	B0	O	B (0) is output in the RGB output mode (ycrgb of indirect register DVR is "1") and Cb (0) is output in the Y/C mode (ycrgb of indirect register DVR is "0")
132	G7	O	G (7) is output in the RGB output mode (ycrgb of indirect register DVR is "1") and Y (7) is output in the Y/C mode (ycrgb of indirect register DVR is "0")
133	G6	O	G (6) is output in the RGB output mode (ycrgb of indirect register DVR is "1") and Y (6) is output in the Y/C mode (ycrgb of indirect register DVR is "0")
134	G5	O	G (5) is output in the RGB output mode (ycrgb of indirect register DVR is "1") and Y (5) is output in the Y/C mode (ycrgb of indirect register DVR is "0")
135	Vss	–	Ground
136	G4	O	G (4) is output in the RGB output mode (ycrgb of indirect register DVR is "1") and Y (4) is output in the Y/C mode (ycrgb of indirect register DVR is "0")
137	G3	O	G (3) is output in the RGB output mode (ycrgb of indirect register DVR is "1") and Y (3) is output in the Y/C mode (ycrgb of indirect register DVR is "0")
138	G2	O	G (2) is output in the RGB output mode (ycrgb of indirect register DVR is "1") and Y (2) is output in the Y/C mode (ycrgb of indirect register DVR is "0")
139	Vss	–	Ground
140	G1	O	G (1) is output in the RGB output mode (ycrgb of indirect register DVR is "1") and Y (1) is output in the Y/C mode (ycrgb of indirect register DVR is "0")
141	G0	O	G (0) is output in the RGB output mode (ycrgb of indirect register DVR is "1") and Y (0) is output in the Y/C mode (ycrgb of indirect register DVR is "0")

Pin No.	Pin Name	I/O	Function
142	V_{DD}	–	+5V power supply.
143	R7	O	R (7) is output in the RGB output mode (ycrgb of indirect register DVR is "1") and Cr (7) is output in the Y/C mode (ycrgb of indirect register DVR is "0")
144	R6	O	R (6) is output in the RGB output mode (ycrgb of indirect register DVR is "1") and Cr (6) is output in the Y/C mode (ycrgb of indirect register DVR is "0")
145	Vss	–	Ground
146	R5	O	R (5) is output in the RGB output mode (ycrgb of indirect register DVR is "1") and Cr (5) is output in the Y/C mode (ycrgb of indirect register DVR is "0")
147	R4	O	G (4) is output in the RGB output mode (ycrgb of indirect register DVR is "1") and Cr (4) is output in the Y/C mode (ycrgb of indirect register DVR is "0")
148	R3	O	G (3) is output in the RGB output mode (ycrgb of indirect register DVR is "1") and Cr (3) is output in the Y/C mode (ycrgb of indirect register DVR is "0")
149	R2	O	G (2) is output in the RGB output mode (ycrgb of indirect register DVR is "1") and Cr (2) is output in the Y/C mode (ycrgb of indirect register DVR is "0")
150	Vss	–	Ground
151	R1	O	R (1) is output in the RGB output mode (ycrgb of indirect register DVR is "1") and Cr (1) is output in the Y/C mode (ycrgb of indirect register DVR is "0")
152	R0	O	R (0) is output in the RGB output mode (ycrgb of indirect register DVR is "1") and Cr (0) is output in the Y/C mode (ycrgb of indirect register DVR is "0")
153	CKEY	–	} Not used
154	DV	–	
155	Vss	–	Ground
156	DCLK	I	External clock for display (dot clock). Inputs display clocks generated by sync signal generator and PLL.
157	Vss	–	Ground
158	SFTV0	–	} Not used
159	SFTV1	–	
160	V_{DD}	–	+5V power supply.

- **IC110 MECHANISM CONTROLLER (HD6433041)/VIDEO board**

Pin No.	Pin Name	I/O	Function
1	Vcc	–	Connected to the power supply (+5V). Connect all Vcc pins to the power supply of the system (+5V).
2	CMD0	I/O	Input/output terminal exchanging data bus 0 with IC501 (system controller)
3	CMD1	I/O	Input/output terminal exchanging data bus 1 with IC501 (system controller)
4	CMD2	I/O	Input/output terminal exchanging data bus 2 with IC501 (system controller)
5	CMD3	I/O	Input/output terminal exchanging data bus 3 with IC501 (system controller)
6	MREQ	I	Inputs command requests from IC501 (system controller)
7	SACK	O	Outputs command acknowledge to IC501 (system controller)
8	QINT	O	Outputs command output pulses to IC501 (system controller)
9	DF-LATHT	O	Serial data latch pulse output to IC116 (digital filter)
10	$\overline{\text{RESO}}$	O	Reset output (Not used)
11	Vss	–	Ground. Connect all Vcc pins to the power supply of the system (0V).
12	TXD0/P90	–	Not used
13	GMUTE	O	Control output pin invalidating subcode data
14	SUBQ	I	Sub Q 80-bit input
15	CDGSEL	O	VIDEO CD discrimination (Connected to ground)
16	SQCK	O	SQSO readout clock input
17	EMP	O	Emphasis
18	D0	I/O	Data bus input/output
19	D1	I/O	
20	D2	I/O	
21	D3	I/O	
22	Vss	–	Ground. Connect all Vcc pins to the power supply of the system (0V).
23	D4	I/O	Data bus input/output
24	D5	I/O	
25	D6	I/O	
26	D7	I/O	
27	D8	I/O	
28	D9	I/O	
29	D10	I/O	
30	D11	I/O	
31	D12	I/O	
32	D13	I/O	
33	D14	I/O	
34	D15	I/O	
35	Vcc	–	Connected to the power supply (+5V). Connect all Vcc to the power supply of the system (+5V).
36	A0	O	Address bus output.
37	A1	O	
38	A2	O	
39	A3	O	
40	A4	O	

Pin No.	Pin Name	I/O	Function
41	A5	O	Address bus output
42	A6	O	
43	A7	O	
44	Vss	–	Ground. Connect all Vcc pins to the power supply of the system (0V).
45	A8	O	Address bus output
46	A9	O	
47	A10	O	
48	A11	O	
49	A12	O	
50	A13	O	
51	A14	O	
52	A15	O	
53	A16	O	
54	A17	O	
55	A18	O	
56	A19	O	
57	Vss	–	Ground. Connect all Vcc pins to the power supply of the system (0V).
58	P60/$\overline{\text{WAIT}}$	I	Wait. Requests insertion of wait state to the bus cycle when accessing external address spaces.
59	P61/$\overline{\text{BREQ}}$	O	NTSC/PAL output select signal.
60	CHECKLED	O	CHECK LED control.
61	SYSCLK	O	System clock output (Not used)
62	$\overline{\text{STBY}}$	I	Shifts to the hardware standby mode when the standby terminal becomes "Low". (Unable to use H level fixed)
63	$\overline{\text{RES}}$	I	Sets into reset when the reset input pin becomes "Low".
64	NMI	I	Requests mask disable interruption. (Unable to use H level fixed)
65	Vss	–	Ground. Connect all Vcc pins to the power supply of the system (+0V).
66	EXTAL	I	Connected to the crystal oscillator. The EXTAL pin is also able to input external clocks.
67	XTAL	I	Connected to the crystal oscillator.
68	Vcc	–	Connected to the power supply (+5V). Connect all Vcc pins to the power supply of the system (+5V).
69	$\overline{\text{AS}}$	O	When the address strobe pin is "Low", indicates that address outputs on the address bus are valid.
70	$\overline{\text{RD}}$	O	When the read pin is "Low", indicates that the external addresses space is in the read state.
71	$\overline{\text{HWR}}$	O	When the highlight terminal is "Low", indicates that he external address space is in the write state and the upper of the data bus (D15 to D6) are valid.
72	$\overline{\text{LWR}}$	O	External address space subordinate byte write output (not used).
73	MD0	I	Operation mode setting terminal ("H": internal ROM, "L": external ROM)
74	MD1	I	Operation mode setting terminal ("L": internal ROM, "H": external ROM)
75	MD2	I	Operation mode setting terminal ("H": internal ROM, "L": external ROM)
76	AVcc	I	A/D converter and D/A converter power supply. When not using both converters, connect to the system power supply (+5V).
77	VREF	I	A/D converter and D/A converter reference voltage input. When not using both converters, connect to the system power supply (+5V).

Pin No.	Pin Name	I/O	Function
78	P70/AN0	I	Video CD color bar mode setting. ("L": color bar, sign wave output)
79	P71/AN1	I	"L": Sign wave output only Lch (78 pin state "L")
80	P72/AN2	I	"L": Sign wave output only Rch (78, 79 pin state "L")
81	P73/AN3	I	Adjust mode setting terminal
82	P74/AN4	–	Not used
83	P75/AN5	I	NTSC/PAL output select mode setting terminal.
84	P76/AN6/DA0	O	Audio output muting terminal.
85	$\overline{\text{VREQ}}$	I	DMA transmission request signal input from IC204.
86	AVss	I	A/D converter and D/A converter ground. Connect to the system power supply (0V).
87	$\overline{\text{ROMINT}}$	I	Interruption request signal to CPU from IC102.
88	$\overline{\text{VINT}}$	I	Pin inputting interruption request to the host processor from IC107.
89	$\overline{\text{AINT}}$	I	Interruption request input from IC102.
90	SCOR	I	Subcode sync input from IC101 (BD board).
91	P	–	Not used
92	Vss	–	Ground. Connect all Vcc pins to the power supply of the system (0V).
93	DATA	O	Serial data output to IC101 (BD board).
94	MUTE	O	Mute switching to IC101 (BD board).
95	LDON	O	Laser diode ON/OFF output
96	XLT	O	Latch output
97	SENS	I	Internal state (SENSE) monitor input from IC101 (BD board).
98	SCLK	O	SENS serial data reading clock output to IC101 (BD board).
99	CLK	O	Serial data clock output to IC101 (BD board).
100	GXRST	O	CD-G decoder reset output (not used)

- **IC501 SYSTEM CONTROL (CXP82324-068Q)/MAIN board**

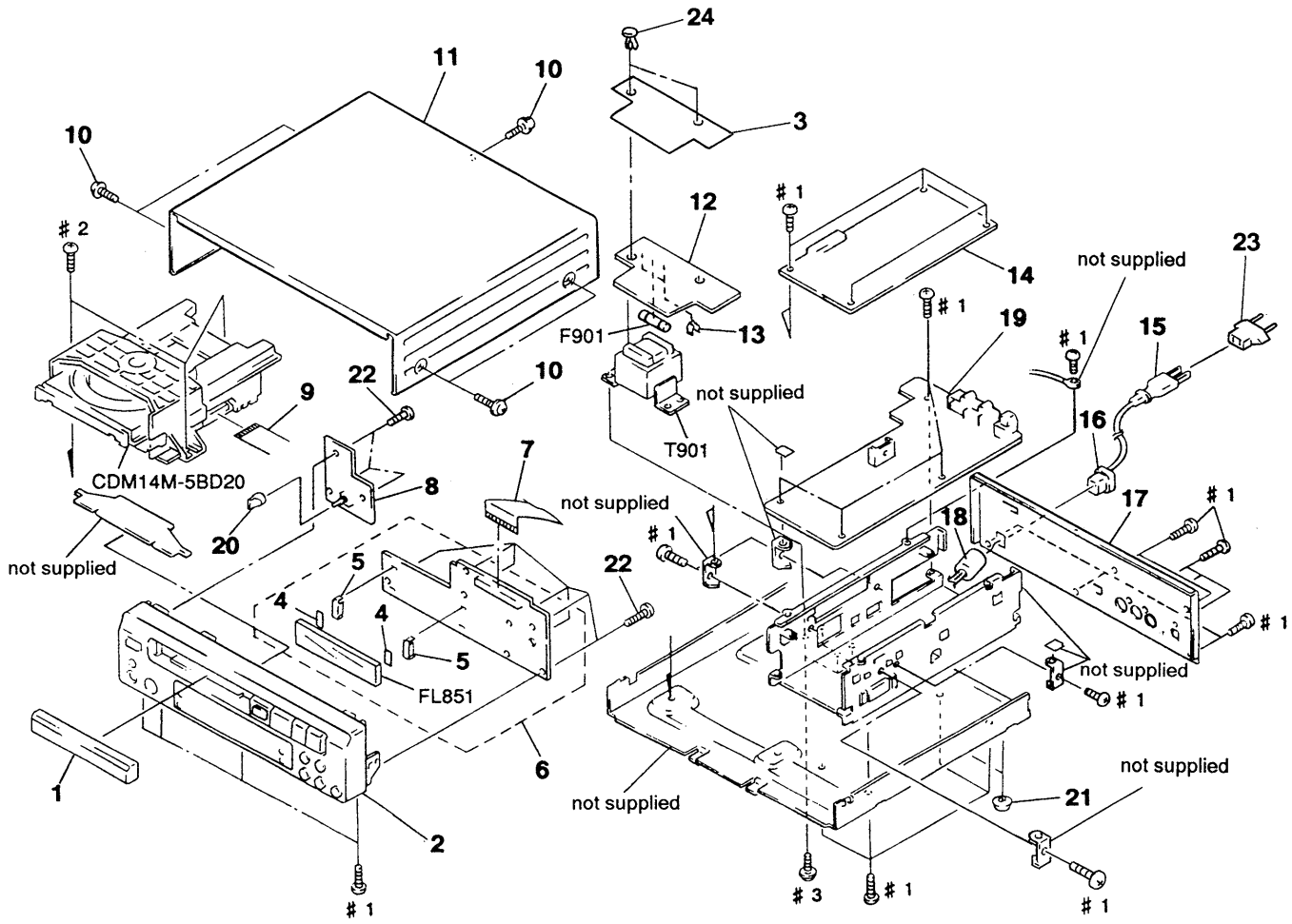
Pin No.	Pin Name	I/O	Function
1	TEST2	I	Test mode. Normally "H".
2	RM IN	I	Remote commander signal input.
3	PES	–	Not used.
4	——	O	
5	——	O	
6	CINT	O	Connect to ground.
7	——	O	
8	CLK	O	Serial clock output to BD.
9	S10	O	Connect to ground.
10	DATA	O	Serial data output.
11	OSDL	O	Serial data enable output.
12	S11	O	Connect to ground.
13	——	–	Not used.
14	LOADOUT	O	Loading motor control.
15	LOADIN	O	
16	POWLED	O	STANDBY LED output.
17	POWON	O	POWER ON/OFF output.
18	——	–	Not used.
19	1052/$\overline{1037}$	I	Model discrimination signal input. Normally: "H".
20	MREQ	O	Outputs command requests from IC110 (mechanism control).
21	SACK	I	Inputs command acknowledge to IC110 (mechanism control).
22, 23	KEY0, KEY1	I	Key input (A/D).
24 to 26	KEY2 to KEY4	I	Connected to +5V.
27	J/$\overline{E}$	I	ON SCREEN character language select input. English: "L"/Japanese: "H".
28	ENC2	I	Loading IN switch input.
29	ENC3	I	Loading OUT switch input.
30	$\overline{RST}$	I	Reset signal input.
31	EXTAL	I	Clock input (10 MHz).
32	XTAL	O	Clock output (10 MHz).
33	Vss	–	Ground
34	MENULED	O	MENU LED output.
35 to 42	——	O	Not used.
43 to 62	P20 to P1	O	Fluorescent indicator tube segment output.
63 to 70	G1 to G8	O	Fluorescent indicator tube grid output.
71	——	I	Fluorescent indicator tube drive voltage input.
72	VDD	–	Power supply (+5V).
73	——	–	Not used.
74	CMD0	I/O	Input/output terminal exchanging data bus 0 with IC110 (mechanism control).
75	CMD1	I/O	Input/output terminal exchanging data bus 1 with IC110 (mechanism control).
76	CMD2	I/O	Input/output terminal exchanging data bus 2 with IC110 (mechanism control).
77	CMD3	I/O	Input/output terminal exchanging data bus 3 with IC110 (mechanism control).
78	QINT	I	Command pulse output to IC110 (mechanism control).
79	INT1	–	Ground
80	TEST1	I	Test mode terminal. Normally "H".

SECTION 7
EXPLODED VIEWS

NOTE:
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

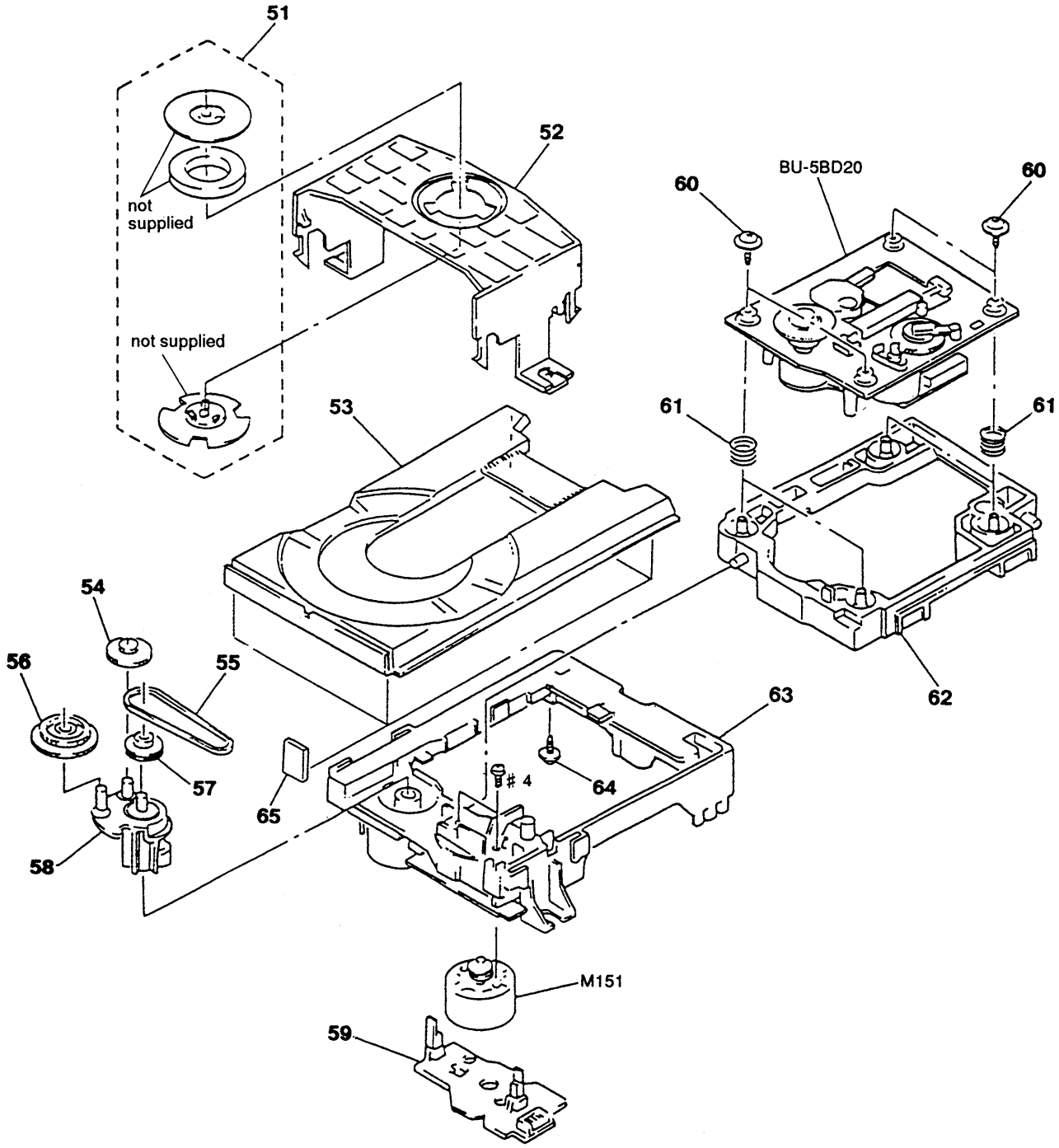
7-1. MAIN SECTION



Ref. No.	Part No.	Description	Remark
1	4-974-994-21	PANEL, LOADING	
2	X-4947-277-1	PANEL ASSY, FRONT	
3	4-977-063-01	SHEET (POWER)	
* 4	4-932-810-11	CUSHION (FL)	
* 5	4-961-264-01	HOLDER (FL TUBE 3.5)	
* 6	A-4673-922-A	DISPLAY BOARD, COMPLETE	
7	1-775-746-11	WIRE (FLAT TYPE) (41 CORE)	
* 8	1-660-306-11	HP BOARD	
9	1-776-858-11	WIRE (FLAT TYPE) (23 CORE)	
10	3-704-366-01	SCREW (CASE) (M3X8)	
* 11	4-969-922-11	CASE	
* 12	1-660-307-11	POWER BOARD	
13	1-533-293-11	FUSE HOLDER	
* 14	A-4699-078-A	VIDEO BOARD, COMPLETE	

Ref. No.	Part No.	Description	Remark
⚠15	1-575-651-21	CORD, POWER	
* 16	3-703-244-00	BUSHING (2104), CORD	
* 17	4-980-819-12	PANEL, BACK	
18	1-543-798-11	FILTER, CLAMP (FERRITE CORE)	
* 19	A-4699-077-A	MAIN BOARD, COMPLETE	
20	4-961-259-01	KNOB (VOL)	
21	4-965-822-01	FOOT	
22	4-951-620-01	SCREW (2.6X8), +BVTP	
⚠23	1-569-008-11	ADAPTER, CONVERSION 2P	
24	3-531-576-11	RIVET	
⚠F901	1-532-463-51	FUSE (1A 250V)	
FL851	1-517-463-11	INDICATOR TUBE, FLUORESCENT	
⚠T901	1-429-262-11	TRANSFORMER, POWER	

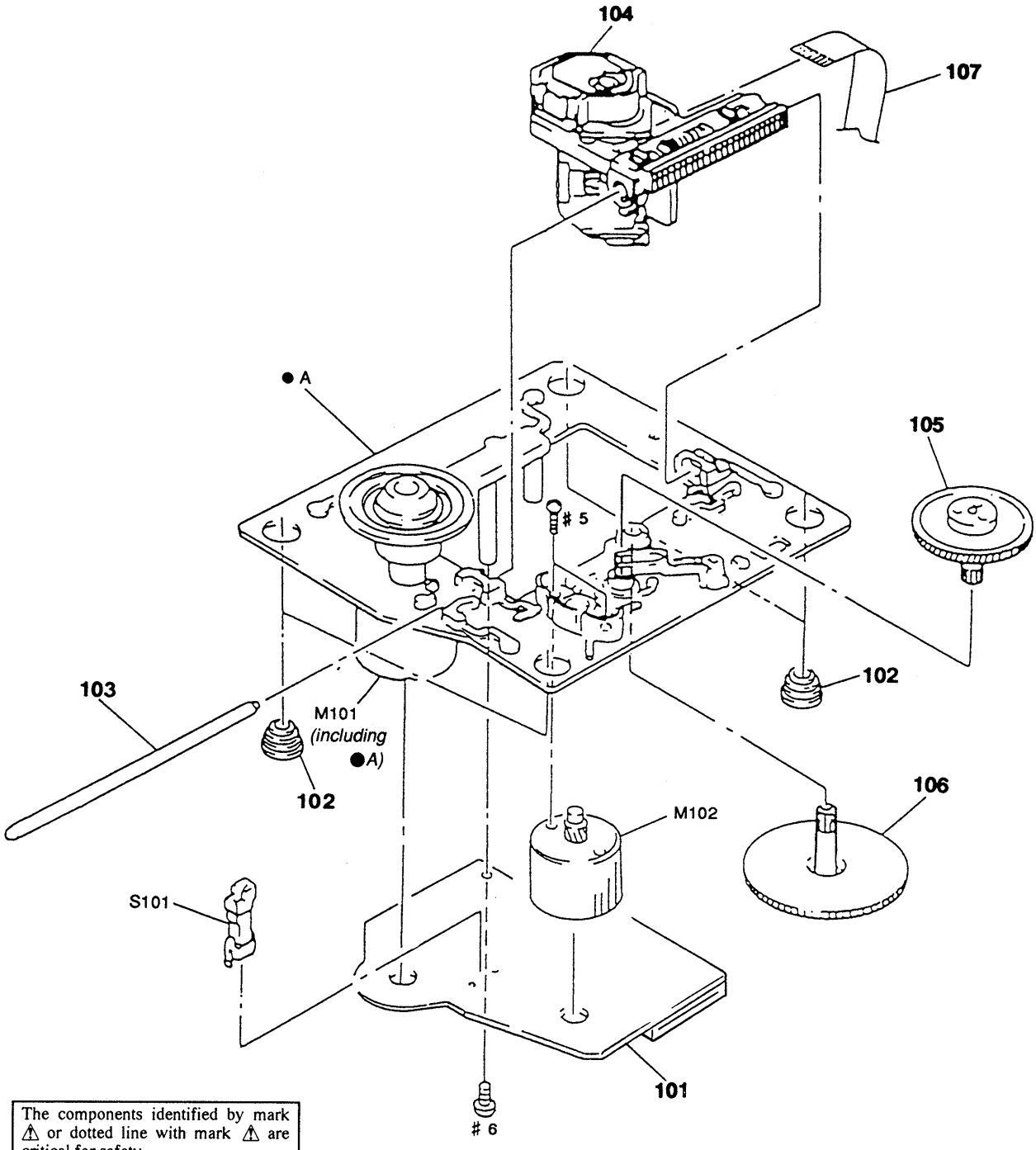
7-2. MECHANISM SECTION (CDM14M-5BD20)



Ref. No.	Part No.	Description	Remark
* 51	1-452-538-11	MAGNET	
52	4-933-110-41	HOLDER (MG)	
53	4-961-487-01	TABLE, DISK	
54	4-967-268-01	GEAR (C)	
55	4-927-649-01	BELT	
56	4-933-107-01	GEAR (PL)	
57	4-927-651-01	PULLEY (S)	
58	4-933-109-01	CAM	
* 59	1-645-721-11	LOADING BOARD	

Ref. No.	Part No.	Description	Remark
60	4-933-134-01	SCREW (+PTPWH M2.6X6)	
61	4-959-996-01	SPRING (932), COMPRESSION	
62	4-933-129-01	HOLDER (BU)	
63	4-933-111-01	CHASSIS (MD)	
* 64	4-917-583-21	BRACKET, YOKE	
65	4-925-315-31	DAMPER	
M151	A-4604-363-A	MOTOR (L) ASSY (LOADING)	

7-3. BASE UNIT SECTION (BU-5BD20)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
* 101	A-4673-509-A	BD BOARD, COMPLETE	
102	4-951-940-01	INSULATOR (BU)	
103	4-917-565-01	SHAFT, SLED	
⚠104	8-848-367-11	OPTICAL PICK-UP BLOCK KSS-213B/K-N	
105	4-917-567-01	GEAR (M)	
106	4-917-564-01	GEAR (P), FLATNESS	
107	1-769-069-11	WIRE (FLAT TYPE) (16 CORE)	
M101	X-4917-523-3	MOTOR ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	
S101	1-572-085-11	SWITCH, LEAF (LIMIT)	

SECTION 8
ELECTRICAL PARTS LIST

BD

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- SEMICONDUCTORS
  In each case, u: μ , for example:
  uA...: μA..., uPA...: μPA..., uPB...: μPB..., uPC...: μPC..., uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH

Ref. No.	Part No.	Description			Remark
*	A-4673-509-A	BD BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-163-005-11	CERAMIC CHIP	470PF	10% 50V	
C102	1-163-038-91	CERAMIC CHIP	0.1uF	25V	
C103	1-163-005-11	CERAMIC CHIP	470PF	10% 50V	
C105	1-135-155-21	TANTALUM CHIP	4.7uF	10% 16V	
C106	1-164-346-11	CERAMIC CHIP	1uF	16V	
C107	1-164-346-11	CERAMIC CHIP	1uF	16V	
C108	1-163-035-00	CERAMIC CHIP	0.047uF	50V	
C109	1-163-145-00	CERAMIC CHIP	0.0015uF	5% 50V	
C110	1-163-017-00	CERAMIC CHIP	0.0047uF	5% 50V	
C111	1-163-251-11	CERAMIC CHIP	100PF	5% 50V	
C112	1-163-038-91	CERAMIC CHIP	0.1uF	25V	
C113	1-163-038-91	CERAMIC CHIP	0.1uF	25V	
C115	1-126-607-11	ELECT CHIP	47uF	20% 4V	
C116	1-126-607-11	ELECT CHIP	47uF	20% 4V	
C117	1-126-209-11	ELECT	100uF	20% 4V	
C118	1-163-275-11	CERAMIC CHIP	0.001uF	5% 50V	
C119	1-163-231-11	CERAMIC CHIP	15PF	5% 50V	
C123	1-164-232-11	CERAMIC CHIP	0.01uF	50V	
C124	1-164-005-11	CERAMIC CHIP	0.47uF	25V	
C140	1-163-038-91	CERAMIC CHIP	0.1uF	25V	
C141	1-163-038-91	CERAMIC CHIP	0.1uF	25V	
C151	1-163-237-11	CERAMIC CHIP	27PF	5% 50V	
C153	1-163-038-91	CERAMIC CHIP	0.1uF	25V	
C154	1-164-336-11	CERAMIC CHIP	0.33uF	25V	
C156	1-163-237-11	CERAMIC CHIP	27PF	5% 50V	
C157	1-163-145-00	CERAMIC CHIP	0.0015uF	5% 50V	
C159	1-163-019-00	CERAMIC CHIP	0.0068uF	10% 50V	
C161	1-163-038-91	CERAMIC CHIP	0.1uF	25V	
		< CONNECTOR >			
CN101	1-770-072-11	CONNECTOR, FFC 23P			
CN102	1-770-014-11	CONNECTOR, FFC/FPC 16P			
		< IC >			
IC101	8-752-369-78	IC CXD2545Q			
IC102	8-759-176-09	IC BA6392FP			
IC103	8-752-072-45	IC CXA1821M-T6			

Ref. No.	Part No.	Description			Remark
		< MOTOR >			
M101	X-4917-523-3	MOTOR ASSY (SPINDLE)			
M102	X-4917-504-1	MOTOR ASSY (SLED)			
		< TRANSISTOR >			
Q101	8-729-010-08	TRANSISTOR MSB710-R			
		< RESISTOR >			
R101	1-216-077-00	METAL CHIP	15K	5% 1/10W	
R102	1-216-097-91	METAL GLAZE	100K	5% 1/10W	
R103	1-216-077-00	METAL CHIP	15K	5% 1/10W	
R104	1-216-085-00	METAL CHIP	33K	5% 1/10W	
R105	1-216-097-91	METAL GLAZE	100K	5% 1/10W	
R106	1-216-061-00	METAL CHIP	3.3K	5% 1/10W	
R107	1-216-061-00	METAL CHIP	3.3K	5% 1/10W	
R108	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R109	1-216-121-91	METAL GLAZE	1M	5% 1/10W	
R110	1-216-025-91	METAL GLAZE	100	5% 1/10W	
R112	1-216-049-91	METAL GLAZE	1K	5% 1/10W	
R123	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R124	1-216-097-91	METAL GLAZE	100K	5% 1/10W	
R125	1-216-049-91	METAL GLAZE	1K	5% 1/10W	
R126	1-216-049-91	METAL GLAZE	1K	5% 1/10W	
R127	1-216-049-91	METAL GLAZE	1K	5% 1/10W	
R131	1-216-037-00	METAL CHIP	330	5% 1/10W	
R135	1-216-295-91	CONDUCTOR, CHIP (2012)			
R136	1-216-295-91	CONDUCTOR, CHIP (2012)			
R137	1-216-295-91	CONDUCTOR, CHIP (2012)			
R138	1-216-295-91	CONDUCTOR, CHIP (2012)			
R141	1-216-089-91	METAL GLAZE	47K	5% 1/10W	
R142	1-216-081-00	METAL CHIP	22K	5% 1/10W	
R143	1-216-103-91	METAL GLAZE	180K	5% 1/10W	
R144	1-216-103-91	METAL GLAZE	180K	5% 1/10W	
R146	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R147	1-216-081-00	METAL CHIP	22K	5% 1/10W	
R148	1-216-001-00	METAL CHIP	10	5% 1/10W	
R149	1-216-003-11	METAL GLAZE	12	5% 1/10W	
R158	1-216-111-91	METAL GLAZE	390K	5% 1/10W	
R159	1-216-101-00	METAL CHIP	150K	5% 1/10W	
R160	1-216-295-91	CONDUCTOR, CHIP (2012)			
R161	1-216-308-00	METAL CHIP	4.7	5% 1/10W	

BD DISPLAY HP

Ref. No.	Part No.	Description				Remark
R162	1-216-101-00	METAL CHIP	150K	5%	1/10W	
		< SWITCH >				
S101	1-572-085-11	SWITCH, LEAF (LIMIT)				
**********						
*	A-4673-922-A	DISPLAY BOARD, COMPLETE				
		**********				
*	4-932-810-11	CUSHION (FL)				
*	4-961-264-01	HOLDER (FL TUBE 3.5)				
		< CAPACITOR >				
C861	1-126-059-11	ELECT	10uF	20%	50V	
		< CONNECTOR >				
CN801	1-770-247-11	SOCKET, CONNECTOR 41P				
* CN802	1-565-480-11	CONNECTOR, BOARD TO BOARD 4P				
* CN804	1-565-480-11	CONNECTOR, BOARD TO BOARD 4P				
		< DIODE >				
D852	8-719-301-58	DIODE SEL2910D-D (□□)				
		< FLUORESCENT INDICATOR >				
FL851	1-517-463-11	INDICATOR TUBE, FLUORESCENT				
		< RESISTOR >				
R851	1-249-421-11	CARBON	2.2K	5%	1/4W F	
R852	1-249-409-11	CARBON	220	5%	1/4W F	
R853	1-249-413-11	CARBON	470	5%	1/4W F	
R854	1-249-415-11	CARBON	680	5%	1/4W F	
R855	1-249-417-11	CARBON	1K	5%	1/4W F	
R856	1-249-419-11	CARBON	1.5K	5%	1/4W F	
R857	1-249-423-11	CARBON	3.3K	5%	1/4W F	
R858	1-249-421-11	CARBON	2.2K	5%	1/4W F	
R859	1-249-409-11	CARBON	220	5%	1/4W F	
R860	1-249-413-11	CARBON	470	5%	1/4W F	
R861	1-249-415-11	CARBON	680	5%	1/4W F	
R862	1-249-417-11	CARBON	1K	5%	1/4W F	
R866	1-249-411-11	CARBON	330	5%	1/4W	
		< SWITCH >				
S851	1-554-303-21	SWITCH, TACTILE (+ MENU)				
S852	1-554-303-21	SWITCH, TACTILE (- MENU)				
S853	1-554-303-21	SWITCH, TACTILE (PLAY MODE)				
S854	1-554-303-21	SWITCH, TACTILE (REPEAT)				
S855	1-554-303-21	SWITCH, TACTILE (PREV ⏮, AMS)				
S856	1-554-303-21	SWITCH, TACTILE (NEXT ⏭, AMS)				
S857	1-554-303-21	SWITCH, TACTILE (↩ RETURN)				
S858	1-554-303-21	SWITCH, TACTILE (■)				
S859	1-554-303-21	SWITCH, TACTILE (□□)				
S860	1-554-303-21	SWITCH, TACTILE (▷ SELECT)				
S861	1-554-303-21	SWITCH, TACTILE (⏏ OPEN/CLOSE)				
**********						
*	1-660-306-11	HP BOARD				
		********				
		< CAPACITOR >				
C801	1-164-159-11	CERAMIC	0.1uF		50V	
C811	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C821	1-162-294-31	CERAMIC	0.001uF	10%	50V	
C851	1-161-494-00	CERAMIC	0.022uF		25V	
		< CONNECTOR >				
* CN803	1-565-295-11	PLUG, CONNECTOR 4P				
* CN805	1-565-295-11	PLUG, CONNECTOR 4P				
		< DIODE >				
D801	8-719-987-63	DIODE 1N4148M				
D802	8-719-987-63	DIODE 1N4148M				
D851	8-719-304-77	DIODE SEL2210R-C (POWER, STANDBY)				
		< IC >				
IC851	8-741-810-59	IC SBX1810-59				
		< JACK >				
J801	1-750-925-11	JACK (SMALL TYPE) (PHONES)				
		< COIL >				
L801	1-412-473-51	INDUCTOR	0uH			
L811	1-412-473-51	INDUCTOR	0uH			
L821	1-412-473-51	INDUCTOR	0uH			
		< RESISTOR >				
R811	1-249-403-11	CARBON	68	5%	1/4W F	
R821	1-249-403-11	CARBON	68	5%	1/4W F	
R865	1-249-411-11	CARBON	330	5%	1/4W	
		< VARIABLE RESISTOR >				
RV301	1-223-535-11	RES, VAR, CARBON 1K/1K (PHONES LEVEL)				
		< SWITCH >				
S864	1-554-303-21	SWITCH, TACTILE (POWER, STANDBY)				
**********						

Ref. No.	Part No.	Description			Remark
*	1-645-721-11	LOADING BOARD			
		**********			
		< CONNECTOR >			
* CN151	1-568-943-11	PIN, CONNECTOR 5P			
		< MOTOR >			
M151	A-4604-363-A	MOTOR (L) ASSY (LOADING)			
		< SWITCH >			
S151	1-572-086-11	SWITCH, LEAF (LOAD OUT)			
S152	1-572-086-11	SWITCH, LEAF (LOAD IN)			
**********					
*	A-4699-077-A	MAIN BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C103	1-110-339-11	MYLAR	220PF	5%	50V
C104	1-162-215-31	CERAMIC	47PF	5%	50V
C105	1-162-215-31	CERAMIC	47PF	5%	50V
C106	1-124-910-11	ELECT	47uF	20%	50V
C107	1-130-472-00	MYLAR	0.0012uF	5%	50V
C108	1-106-359-00	MYLAR	4700PF	5%	200V
C109	1-126-052-11	ELECT	100uF	20%	10V
C110	1-126-052-11	ELECT	100uF	20%	10V
C111	1-124-748-11	ELECT	22uF	20%	100V
C113	1-130-467-00	MYLAR	470PF	5%	50V
C203	1-110-339-11	MYLAR	220PF	5%	50V
C204	1-162-215-31	CERAMIC	47PF	5%	50V
C205	1-162-215-31	CERAMIC	47PF	5%	50V
C206	1-124-910-11	ELECT	47uF	20%	50V
C207	1-130-472-00	MYLAR	0.0012uF	5%	50V
C208	1-106-359-00	MYLAR	4700PF	5%	200V
C209	1-126-052-11	ELECT	100uF	20%	10V
C210	1-126-052-11	ELECT	100uF	20%	10V
C211	1-124-748-11	ELECT	22uF	20%	100V
C213	1-130-467-00	MYLAR	470PF	5%	50V
C314	1-126-052-11	ELECT	100uF	20%	10V
C315	1-126-052-11	ELECT	100uF	20%	10V
C316	1-126-025-11	ELECT	330uF	20%	16V
C317	1-126-025-11	ELECT	330uF	20%	16V
C318	1-126-052-11	ELECT	100uF	20%	10V
C319	1-124-910-11	ELECT	47uF	20%	50V
C320	1-126-163-11	ELECT	4.7uF	20%	50V
C321	1-126-023-11	ELECT	100uF	20%	25V
C322	1-126-023-11	ELECT	100uF	20%	25V
C331	1-161-494-00	CERAMIC	0.022uF		25V
C332	1-162-306-11	CERAMIC	0.01uF	20%	16V

Ref. No.	Part No.	Description			Remark
C333	1-164-159-11	CERAMIC	0.1uF		50V
C451	1-126-926-11	ELECT	1000uF	20%	10V
C501	1-124-910-11	ELECT	47uF	20%	50V
C502	1-164-159-11	CERAMIC	0.1uF		50V
C503	1-162-294-31	CERAMIC	0.001uF	10%	50V
C504	1-162-294-31	CERAMIC	0.001uF	10%	50V
C506	1-162-294-31	CERAMIC	0.001uF	10%	50V
C507	1-162-294-31	CERAMIC	0.001uF	10%	50V
C508	1-164-159-11	CERAMIC	0.1uF		50V
C509	1-164-159-11	CERAMIC	0.1uF		50V
C510	1-164-159-11	CERAMIC	0.1uF		50V
C901	1-164-159-11	CERAMIC	0.1uF		50V
C902	1-128-548-11	ELECT	4700uF	20%	25V
C903	1-126-942-61	ELECT	1000uF	20%	25V
C904	1-126-163-11	ELECT	4.7uF	20%	50V
C905	1-126-163-11	ELECT	4.7uF	20%	50V
C906	1-126-163-11	ELECT	4.7uF	20%	50V
C907	1-126-101-11	ELECT	100uF	20%	16V
C908	1-126-163-11	ELECT	4.7uF	20%	50V
C909	1-126-101-11	ELECT	100uF	20%	16V
C911	1-126-059-11	ELECT	10uF	20%	50V
C912	1-126-101-11	ELECT	100uF	20%	16V
C913	1-126-936-11	ELECT	3300uF	20%	16V
C914	1-124-987-11	ELECT	3300uF	20%	6.3V
C915	1-162-306-11	CERAMIC	0.01uF	20%	16V
		< CONNECTOR >			
CN501	1-770-246-11	SOCKET, CONNECTOR 41P			
CN903	1-564-511-11	PLUG, CONNECTOR 8P			
		< DIODE >			
D301	8-719-987-63	DIODE 1N4148M			
D311	8-719-109-82	DIODE RD4.7ES-B3			
D321	8-719-200-82	DIODE 11ES2			
D322	8-719-200-82	DIODE 11ES2			
D901	8-719-200-82	DIODE 11ES2			
D902	8-719-200-82	DIODE 11ES2			
D903	8-719-200-82	DIODE 11ES2			
D904	8-719-200-82	DIODE 11ES2			
D909	8-719-200-82	DIODE 11ES2			
		< GROUND TERMINAL >			
EPT901	1-537-770-21	TERMINAL BOARD, GROUND			
		< IC LINK >			
⚠F902	1-532-840-41	LINK, IC PRF1250 (1.25A)			
		< IC >			
IC302	8-759-175-88	IC LA9215-ST			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

MAIN POWER

Ref. No.	Part No.	Description				Remark
IC303	8-759-822-09	IC	LB1641			
IC304	8-749-921-12	IC	GP1F32T			
IC305	8-759-634-51	IC	M5218AP			
IC501	8-752-874-00	IC	CXP82324-068Q			
IC901	8-759-061-65	IC	LA5602			
IC902	8-759-805-37	IC	L78LR05D-MA			
IC903	8-759-605-00	IC	M5F78M07L			
IC904	8-749-011-33	IC	BP5020			
		< JACK >				
J301	1-764-592-31	JACK 3P (VIDEO OUT, AUDIO OUT)				
		< COIL >				
L302	1-410-322-11	INDUCTOR	3.3uH			
L303	1-410-322-11	INDUCTOR	3.3uH			
L901	1-412-473-51	INDUCTOR	0uH			
		< TRANSISTOR >				
Q501	8-729-900-80	TRANSISTOR	DTC114ES			
Q906	8-729-823-19	TRANSISTOR	2SB985-T-AE			
Q907	8-729-900-80	TRANSISTOR	DTC114ES			
Q909	8-729-422-57	TRANSISTOR	UN4111			
Q910	8-729-900-80	TRANSISTOR	DTC114ES			
Q911	8-729-900-89	TRANSISTOR	DTC144ES			
Q912	8-729-422-57	TRANSISTOR	UN4111			
Q914	8-729-900-80	TRANSISTOR	DTC114ES			
		< RESISTOR >				
R101	1-259-458-11	CARBON	18K	5%	1/6W	
R102	1-259-458-11	CARBON	18K	5%	1/6W	
R103	1-259-456-11	CARBON	15K	5%	1/6W	
R104	1-259-456-11	CARBON	15K	5%	1/6W	
R105	1-259-468-11	CARBON	47K	5%	1/6W	
R106	1-259-468-11	CARBON	47K	5%	1/6W	
R107	1-259-452-11	CARBON	10K	5%	1/6W	
R108	1-259-432-11	CARBON	1.5K	5%	1/6W	
R109	1-259-432-11	CARBON	1.5K	5%	1/6W	
R110	1-249-441-11	CARBON	100K	5%	1/4W	
R111	1-259-476-11	CARBON	100K	5%	1/6W	
R113	1-259-428-11	CARBON	1K	5%	1/6W	
R201	1-259-458-11	CARBON	18K	5%	1/6W	
R202	1-259-458-11	CARBON	18K	5%	1/6W	
R203	1-259-456-11	CARBON	15K	5%	1/6W	
R204	1-259-456-11	CARBON	15K	5%	1/6W	
R205	1-259-468-11	CARBON	47K	5%	1/6W	
R206	1-259-468-11	CARBON	47K	5%	1/6W	
R207	1-259-452-11	CARBON	10K	5%	1/6W	
R208	1-259-432-11	CARBON	1.5K	5%	1/6W	
R209	1-259-432-11	CARBON	1.5K	5%	1/6W	
R210	1-249-441-11	CARBON	100K	5%	1/4W	

Ref. No.	Part No.	Description				Remark
R211	1-259-476-11	CARBON	100K	5%	1/6W	
R213	1-259-428-11	CARBON	1K	5%	1/6W	
R306	1-249-429-11	CARBON	10K	5%	1/4W	
⚠R309	1-212-865-00	FUSIBLE	22	5%	1/4W	F
⚠R310	1-212-865-00	FUSIBLE	22	5%	1/4W	F
R450	1-247-804-11	CARBON	75	5%	1/4W	
R451	1-249-429-11	CARBON	10K	5%	1/4W	
R454	1-249-429-11	CARBON	10K	5%	1/4W	
R455	1-249-433-11	CARBON	22K	5%	1/4W	
R501	1-249-429-11	CARBON	10K	5%	1/4W	
R502	1-249-429-11	CARBON	10K	5%	1/4W	
R503	1-249-429-11	CARBON	10K	5%	1/4W	
R508	1-249-417-11	CARBON	1K	5%	1/4W	F
R509	1-249-417-11	CARBON	1K	5%	1/4W	F
R510	1-249-429-11	CARBON	10K	5%	1/4W	
R511	1-249-429-11	CARBON	10K	5%	1/4W	
R512	1-249-429-11	CARBON	10K	5%	1/4W	
R513	1-249-429-11	CARBON	10K	5%	1/4W	
R514	1-249-417-11	CARBON	1K	5%	1/4W	F
R515	1-249-429-11	CARBON	10K	5%	1/4W	
R516	1-249-429-11	CARBON	10K	5%	1/4W	
R517	1-249-429-11	CARBON	10K	5%	1/4W	
R527	1-249-429-11	CARBON	10K	5%	1/4W	
R529	1-249-429-11	CARBON	10K	5%	1/4W	
R903	1-249-423-11	CARBON	3.3K	5%	1/4W	F
R904	1-249-433-11	CARBON	22K	5%	1/4W	
R909	1-249-417-11	CARBON	1K	5%	1/4W	F
R910	1-249-417-11	CARBON	1K	5%	1/4W	F
⚠R913	1-212-865-00	FUSIBLE	22	5%	1/4W	F
⚠R914	1-212-865-00	FUSIBLE	22	5%	1/4W	F
R915	1-249-423-11	CARBON	3.3K	5%	1/4W	F
		< SWITCH >				
S501	1-571-552-11	SWITCH, SLIDE (COLOR SYSTEM)				
		< VIBRATOR >				
X501	1-579-175-11	VIBRATOR, CERAMIC (10MHz)				
**********						
*	1-660-307-11	POWER BOARD				
		**********				
	1-533-293-11	FUSE HOLDER				
		< CAPACITOR >				
C910	1-126-063-11	ELECT	100uF	20%	63V	
C916	1-164-159-11	CERAMIC	0.1uF		50V	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remark
		< CONNECTOR >			
CN901	1-580-230-11	PIN, CONNECTOR (PC BOARD) 2P			
		< DIODE >			
D905	8-719-200-82	DIODE 11ES2			
D906	8-719-934-18	DIODE HZS27-2L			
D907	8-719-987-63	DIODE 1N4148M			
D908	8-719-109-82	DIODE RD4.7ES-B3			
		< FUSE >			
⚠F901	1-532-463-51	FUSE (1A 250V)			
		< TRANSISTOR >			
Q901	8-729-019-64	TRANSISTOR 2SB1041			
Q902	8-729-119-76	TRANSISTOR 2SA1175-HFE			
		< RESISTOR >			
R901	1-249-435-11	CARBON	33K	5% 1/4W	
R902	1-249-433-11	CARBON	22K	5% 1/4W	
R905	1-249-417-11	CARBON	1K	5% 1/4W	F
R921	1-249-433-11	CARBON	22K	5% 1/4W	
		< SWITCH >			
⚠SB991	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (VOLTAGE SELECTOR)			
		< TRANSFORMER >			
⚠T901	1-429-262-11	TRANSFORMER, POWER			
**********					
*	A-4699-078-A	VIDEO BOARD, COMPLETE **********			
		< CAPACITOR >			
C100	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C101	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C102	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C103	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C104	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C105	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C106	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C107	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C108	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C109	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C110	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C111	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C112	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C113	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C114	1-163-038-91	CERAMIC CHIP	0.1uF		25V

Ref. No.	Part No.	Description			Remark
C117	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C118	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C119	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C120	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C121	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C122	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C123	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C124	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C125	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C126	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C127	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C128	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C129	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C130	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C131	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C132	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C133	1-163-222-11	CERAMIC CHIP	5PF	0.25PF	50V
C134	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C135	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C136	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C137	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C138	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C139	1-164-346-11	CERAMIC CHIP	1uF		16V
C140	1-124-779-00	ELECT CHIP	10uF	20%	16V
C141	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C142	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C143	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C144	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C145	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C146	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C147	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C148	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C149	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C150	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C151	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C152	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C153	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C154	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C155	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C156	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C157	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C160	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C162	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C163	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C164	1-124-779-00	ELECT CHIP	10uF	20%	16V
C165	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C166	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C168	1-163-091-00	CERAMIC CHIP	8PF		50V
C169	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C171	1-163-099-00	CERAMIC CHIP	18PF	5%	50V

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description				Remark
C172	1-126-206-11	ELECT CHIP	100uF	20%	6.3V	
C173	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C174	1-163-099-00	CERAMIC CHIP	18PF	5%	50V	
C175	1-126-206-11	ELECT CHIP	100uF	20%	6.3V	
C176	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C177	1-124-779-00	ELECT CHIP	10uF	20%	16V	
C178	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C179	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C180	1-124-779-00	ELECT CHIP	10uF	20%	16V	
C181	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C182	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C183	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C184	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C185	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V	
C186	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V	
C187	1-163-239-11	CERAMIC CHIP	33PF	5%	50V	
C188	1-163-239-11	CERAMIC CHIP	33PF	5%	50V	
C189	1-163-121-00	CERAMIC CHIP	150PF	5%	50V	
C190	1-163-121-00	CERAMIC CHIP	150PF	5%	50V	
C191	1-163-121-00	CERAMIC CHIP	150PF	5%	50V	
C192	1-163-121-00	CERAMIC CHIP	150PF	5%	50V	
C194	1-163-235-11	CERAMIC CHIP	22PF	5%	50V	
C199	1-163-121-00	CERAMIC CHIP	150PF	5%	50V	
C410	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C411	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C412	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
C413	1-124-779-00	ELECT CHIP	10uF	20%	16V	
C414	1-163-038-91	CERAMIC CHIP	0.1uF		25V	
		< CONNECTOR >				
CN101	1-770-072-11	CONNECTOR, FFC 23P				
CN102	1-770-215-11	PIN, CONNECTOR (PC BOARD) 7P				
* CN104	1-770-153-11	PIN, CONNECTOR (PC BOARD) 8P				
* CN105	1-770-154-11	PIN, CONNECTOR (PC BOARD) 6P				
CN106	1-778-063-11	PIN, CONNECTOR (PC BOARD) 4P				
CN107	1-778-063-11	PIN, CONNECTOR (PC BOARD) 4P				
		< TRIMMER >				
CT418	1-141-422-31	CAP, ADJ				
CT419	1-141-424-11	CAP, ADJ				
		< DIODE >				
D201	8-719-018-51	DIODE CL-170R-CD				
		< COIL >				
FL101	1-411-165-21	COIL, OSC				
		< IC >				
IC101	8-759-925-74	IC SN74HC04ANS				
IC102	8-752-379-08	IC CXD2741Q				
IC103	8-759-421-57	IC LC3564SM-70-TEL				
IC104	8-759-389-93	IC HM514260CTT-7				
IC105	8-759-421-57	IC LC3564SM-70-TEL				
IC107	8-752-368-37	IC CXD1850Q				
IC108	8-759-926-11	IC SN74HC138ANS				
IC109	8-752-367-66	IC CXD1851Q				
IC110	8-759-423-98	IC HD6433041K25F				
IC111	8-752-338-46	IC CXD1178Q				
IC112	8-759-295-09	IC TLC2932IPW				
IC113	8-752-068-43	IC CXA1645M				
IC115	8-759-927-46	IC SN74HC00ANS				
IC116	8-759-382-13	IC SM5876AM-E2				
IC117	8-759-269-92	IC SN74HCU04ANS-E20				
IC207	8-759-349-63	IC uPD6461GS-818-GLG-E1				
IC208	8-759-927-46	IC SN74HC00ANS				
IC209	8-759-011-65	IC MC74HC4053F				
		< COIL >				
L101	1-412-784-41	INDUCTOR 4.7uH				
L105	1-412-784-41	INDUCTOR 4.7uH				
L106	1-412-784-41	INDUCTOR 4.7uH				
		< TRANSISTOR >				
Q110	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
Q201	8-729-421-22	TRANSISTOR UN2211				
		< RESISTOR >				
R101	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R102	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R103	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R104	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R105	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R106	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R108	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R109	1-216-121-91	METAL GLAZE	1M	5%	1/10W	
R110	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R128	1-216-041-00	METAL CHIP	470	5%	1/10W	
R131	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R133	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R135	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R136	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R137	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R138	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R139	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R140	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R142	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R143	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R144	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R145	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	

Ref. No.	Part No.	Description				Remark
R146	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R147	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R148	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R149	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R150	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R151	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R152	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R153	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R154	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R155	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R156	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R157	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R158	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R159	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R160	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R161	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R162	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R163	1-216-089-91	METAL GLAZE	47K	5%	1/10W	
R164	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R165	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R166	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R167	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R168	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R169	1-216-041-00	METAL CHIP	470	5%	1/10W	
R170	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R171	1-216-063-91	METAL GLAZE	3.9K	5%	1/10W	
R172	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R173	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R174	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R175	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R176	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R177	1-216-033-00	METAL CHIP	220	5%	1/10W	
R178	1-216-095-00	METAL CHIP	82K	5%	1/10W	
R179	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R180	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R181	1-216-033-00	METAL CHIP	220	5%	1/10W	
R182	1-216-033-00	METAL CHIP	220	5%	1/10W	
R183	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R184	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R185	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R186	1-216-049-91	METAL GLAZE	1K	5%	1/10W	
R187	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R188	1-216-041-00	METAL CHIP	470	5%	1/10W	
R189	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R190	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R191	1-216-121-91	METAL GLAZE	1M	5%	1/10W	
R192	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R194	1-216-043-91	METAL GLAZE	560	5%	1/10W	
R195	1-216-043-91	METAL GLAZE	560	5%	1/10W	
R199	1-216-049-91	METAL GLAZE	1K	5%	1/10W	

Ref. No.	Part No.	Description				Remark
R234	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R235	1-216-651-11	METAL CHIP	1K	0.5%	1/10W	
R236	1-216-651-11	METAL CHIP	1K	0.5%	1/10W	
R237	1-216-651-11	METAL CHIP	1K	0.5%	1/10W	
R238	1-216-635-11	METAL CHIP	220	0.5%	1/10W	
R239	1-216-635-11	METAL CHIP	220	0.5%	1/10W	
R240	1-216-635-11	METAL CHIP	220	0.5%	1/10W	
R241	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R242	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R243	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	
R244	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R245	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R246	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R250	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R251	1-216-025-91	METAL GLAZE	100	5%	1/10W	
R252	1-216-025-91	METAL GLAZE	100	5%	1/10W	

< VIBRATOR >

X101	1-760-503-11	VIBRATOR, CRYSTAL (28.6363MHz)
X202	1-579-938-21	VIBRATOR, CERAMIC (8MHz)
X402	1-760-504-11	VIBRATOR, CRYSTAL (17.734MHz)
X601	1-767-055-11	VIBRATOR, CERAMIC (45.1584MHz)
X701	1-760-517-11	VIBRATOR, CRYSTAL (16.9344MHz)

****

MISCELLANEOUS

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7	1-775-746-11	WIRE (FLAT TYPE) (41 CORE)
9	1-776-858-11	WIRE (FLAT TYPE) (23 CORE)
13	1-533-293-11	FUSE HOLDER
⚠15	1-575-651-21	CORD, POWER
18	1-543-798-11	FILTER, CLAMP (FERRITE CORE)
⚠23	1-569-008-11	ADAPTER, CONVERSION 2P
* 51	1-452-538-11	MAGNET
⚠104	8-848-367-11	OPTICAL PICK-UP BLOCK KSS-213B/K-N
107	1-769-069-11	WIRE (FLAT TYPE) (16 CORE)
⚠F901	1-532-463-51	FUSE (1A 250V)
FL851	1-517-463-11	INDICATOR TUBE, FLUORESCENT
M101	X-4917-523-3	MOTOR ASSY (SPINDLE)
M102	X-4917-504-1	MOTOR ASSY (SLED)
M151	A-4604-363-A	MOTOR (L) ASSY (LOADING)
S101	1-572-085-11	SWITCH, LEAF (LIMIT)
⚠T901	1-429-262-11	TRANSFORMER, POWER

****

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-473-614-11	REMOTE COMMANDER (RMT-S50)	
	1-558-271-11	CORD, CONNECTION (AUDIO 108cm)	
	1-751-619-11	CORD, CONNECTION (VIDEO 150cm)	
	3-708-885-01	COVER, BATTERY (for RMT-S50)	
	3-810-744-11	MANUAL, INSTRUCTION (ENGLISH, CHINESE)	
*	4-983-346-01	CUSHION (FRONT)	
*	4-983-347-01	CUSHION (REAR)	
*	4-983-447-01	INDIVIDUAL CARTON	
**********			
		**********	
		HARDWARE LIST	
		**********	
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#2	7-685-871-01	SCREW +BVTT 3X6 (S)	
#3	7-682-548-04	SCREW +BVTT 3X8 (S)	
#4	7-621-775-10	SCREW +B 2.6X4	
#5	7-621-255-15	SCREW +P 2X3	
#6	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S	

9-960-631-11

Sony Corporation
Consumer A&V Products Company
Home A&V Products Div.

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